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MILK-SANITATION RATINGS OF CITIES

Cities for Which Milk-Sanitation Ratings of 90 Percent or More Were Reported by State Milk-Sanitation Authorities During the Months of July, August, and September 1935

The last complete revision of the list of American municipalities for which milk-sanitation ratings of 90 percent or more were reported by their respective State milk-sanitation authorities was published in the Public Health Reports for July 26, 1935 (Reprint No. 1694). A supplementary list is presented herewith showing the additional cities for which ratings of 90 percent or more were reported during the months of July, August, and September 1935.

The rules governing inclusion in these lists and the significance of the milk-sanitation ratings made in accordance with the Public Health Service rating methods were published in the Public Health Reports for July 26, 1935.

Cities included in this and the previous list are advised to bring their milk-sanitation status to the level required by the latest edition of the Public Health Service Milk Ordinance and Code. Cities which are not now on the list should improve their milk supplies as much as possible and then request the State milk-control authority to determine their ratings.

State milk-control authorities are urged to equip themselves to make milk-sanitation ratings of their cities as soon as possible, in fairness to their cities. States already equipped for this work should not permit ratings of their cities to lapse, as no rating more than 2 years old will be included in the complete semiannual revision of the list to be published next January.

(1441)

Cities having ratings of 90 percent or more according to reports received during July, August, and September 1935

City	Percent-age of milk pasteurized	Date of rating	City	Percent-age of milk pasteurized	Date of rating
ARIZONA					
Flagstaff.....	32	February 1935.	Kinston.....	17	Sept. 17, 1935.
Tucson.....	85	June 21, 1935.	Tarboro.....	100	Apr. 18, 1935.
Yuma.....	39	June 14, 1935.			
MISSISSIPPI					
Greenville.....	26	Aug. 29, 1935.	Big Spring.....	27	Aug. 5 1935.
Pascagoula.....	0	Sept. 5, 1935.	Gainesville.....	46	Sept. 6, 1935.
Picayune.....	0	June 5, 1935.	Victoria.....	0	February 1935.
Vicksburg.....	41	June 20, 1935.	Waco.....	31	Sept. 20, 1935.
			Yoakum.....	0	March 1935.
MISSOURI					
Columbia.....	39	June 7, 1935.			
St. Joseph.....	31	Aug. 9, 1935.			
Springfield.....	39	Aug. 24, 1935.			
NORTH CAROLINA					
TEXAS					

PROVISIONAL SUMMARY OF MORTALITY STATISTICS FOR THE UNITED STATES, 1932, 1933, AND 1934

According to figures compiled by the Bureau of the Census there were 1,396,903 deaths from all causes in the United States in 1934, representing a mortality rate of 11 per 1,000 estimated population—an increase over 1933, when the rate was 10.7. The 1933 death rate was the lowest ever recorded since the annual collection of mortality statistics was begun in 1900.

The accompanying table gives the number of deaths and the death rates in each year from 1932 to 1934, inclusive, for each cause according to the titles of the International List of Causes of Death.

Provisional summary of mortality statistics for the United States for the years 1932, 1933, and 1934

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1934	1933	1932*	1934	1933	1932*
Total deaths (all causes exclusive of still-births).....	1,396,903	1,342,103	1,308,529	1,104.9	1,067.8	1,089.3
<i>I. Infectious and parasitic diseases</i>	148,124	155,831	156,979	117.2	124.0	130.7
Typhoid fever.....	4,162	4,339	4,363	3.3	3.5	3.6
Paratyphoid fever.....	75	84	78	.1	.1	.1
Typhus fever.....	86	81	36	.1	.1	(1)
Relapsing fever.....	1			(1)		
Undulant fever.....	65	72	62	.1	.1	.1
Smallpox.....	24	39	38	(1)	(1)	(1)
Measles.....	6,986	2,813	1,941	5.5	2.2	1.6
Scarlet fever.....	2,524	2,546	2,577	2.0	2.0	2.1
Whooping cough.....	7,518	4,463	5,364	5.9	3.6	4.5
Diphtheria.....	4,159	4,937	5,418	3.3	3.9	4.5
Influenza.....	21,868	33,193	37,066	17.3	26.4	30.9
Respiratory complications specified.....	13,966	21,052	24,120	11.0	16.7	20.1
Respiratory complications not specified.....	7,902	12,141	12,946	6.3	9.7	10.8
Dysentery.....	3,373	2,815	2,083	2.7	2.2	1.7

See footnotes at end of table.

Provisional summary of mortality statistics for the United States for the years 1932, 1933, and 1934—Continued

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1934	1933	1932*	1934	1933	1932*
<i>I. Infectious and parasitic diseases—Con.</i>						
Plague.....	2	1		(1)	(1)	
Erysipelas.....	1,947	2,017	1,934	1.5	1.6	1.6
Acute poliomyelitis, acute polioencephalitis.....	852	797	828	.7	.6	.7
Lethargic or epidemic encephalitis.....	923	1,357	874	.7	1.1	.7
Epidemic cerebrospinal meningitis.....	1,272	1,482	1,677	1.0	1.2	1.4
Glanders.....	2			(1)		
Anthrax (Bacillus anthracis), malignant pustule.....	9	11	12	(1)	(1)	(1)
Rabies.....	80	65	55	.1	.1	(1)
Tetanus.....	1,226	1,253	1,119	1.0	1.0	.9
Tuberculosis (all forms).....	71,609	74,842	75,509	56.6	59.5	62.9
Respiratory system.....	64,706	67,422	67,789	51.2	53.6	56.4
Meninges and central nervous system.....	2,109	2,212	2,317	1.7	1.8	1.9
Intestines and peritoneum.....	1,579	1,815	1,942	1.2	1.4	1.6
Vertebral column.....	738	755	809	.6	.6	.7
Bones and joints (vertebral column excepted).....	398	382	426	.3	.3	.4
Bones.....	133	164	169	.1	.1	.1
Joints.....	265	218	257	.2	.2	.2
Skin and subcutaneous cellular tissue.....	27	38	59	(1)	(1)	(1)
Lymphatic system (bronchial, mesenteric, and retroperitoneal glands excepted).....	150	177	164	.1	.1	.1
Genitourinary system.....	569	564	520	.5	.4	.4
Other organs.....	96	101	119	.1	.1	.1
Disseminated tuberculosis.....	1,237	1,376	1,364	1.0	1.1	1.1
Acute.....	1,695	1,195	1,193	.9	1.0	1.0
Chronic.....	142	17	14	.1	(1)	(1)
Unspecified.....		164	157		.1	.1
Leprosy.....	32	27	25	(1)	(1)	(1)
Syphilis.....	11,726	11,039	10,684	9.3	8.8	8.9
Gonococcus infection and other venereal diseases.....	1,051	998	916	.8	.8	.8
Purulent infection, septicemia (nonpuerperal).....	928	931	869	.7	.7	.7
Malaria.....	4,520	4,678	2,568	3.6	3.7	2.1
Other diseases due to protozoal parasites.....	52	61	52	(1)	(1)	(1)
Ankylostomiasis.....	24	20	24	(1)	(1)	(1)
Hydatid cysts.....	26	36	36	(1)	(1)	(1)
Liver.....	18	26	24	(1)	(1)	(1)
Other organs.....	8	10	12	(1)	(1)	(1)
Other diseases caused by helminths.....	107	101	114	.1	.1	.1
Mycoses.....	287	261	249	.2	.2	.2
Other infectious and parasitic diseases.....	608	412	408	.5	.3	.3
<i>II. Cancers and other tumors</i>						
Cancer and other malignant tumors.....	140,771	134,530	128,597	111.3	107.0	107.1
Of the buccal cavity and pharynx.....	134,428	128,479	122,739	106.3	102.2	102.2
Lip.....	5,009	4,845	4,596	4.0	3.9	3.8
Tongue.....	712	692	670	.6	.6	.6
Mouth.....	1,056	1,036	946	.8	.8	.8
Jaw.....	555	505	441	.4	.4	.4
Other and unspecified parts of the buccal cavity.....	1,053	1,054	1,034	.8	.8	.9
Pharynx.....	611	620	585	.5	.5	.5
Of the digestive tract and peritoneum.....	1,022	938	920	.8	.7	.8
Esophagus.....	65,476	63,176	60,810	51.8	50.3	50.6
Stomach and duodenum.....	2,243	2,111	2,063	1.8	1.7	1.7
Intestines (except duodenum, rectum, anus).....	26,869	26,566	25,909	21.3	21.1	21.6
Rectum and anus.....	14,105	12,972	12,137	11.2	10.3	10.1
Liver and biliary passages.....	6,740	6,372	5,890	5.3	5.1	4.9
Pancreas.....	10,668	10,595	10,452	8.4	8.4	8.7
Mesentery and peritoneum.....	3,775	3,567	3,371	3.0	2.8	2.8
Others under this title.....	999	915	927	.8	.7	.8
Of the respiratory system.....	77	78	61	.1	.1	.1
Larynx.....	5,473	4,940	4,549	4.3	3.9	3.8
Lungs and pleura.....	1,100	1,079	1,048	.9	.9	.9
Other respiratory organs.....	3,877	3,410	3,166	3.1	2.7	2.6
Of the uterus.....	496	451	335	.4	.4	.3
Of other female genital organs.....	15,635	15,221	14,908	12.4	12.1	12.4
Ovary and Fallopian tube.....	3,271	2,890	2,684	2.6	2.3	2.2
Vagina and vulva.....	2,676	2,304	2,167	2.1	1.8	1.8
Other female genital organs.....	545	534	478	.4	.4	.4
Of the breast.....	50	52	39	(1)	(1)	(1)
	13,171	12,484	11,889	10.4	9.9	9.9

See footnotes at end of table.

Provisional summary of mortality statistics for the United States for the years 1932, 1933, and 1934—Continued

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1934	1933	1932*	1934	1933	1932*
<i>II. Cancers and other tumors—Continued.</i>						
Cancer and other malignant tumors—Con.						
Of the male genitourinary organs.	11,342	10,455	9,504	9.0	8.3	8.0
Kidneys and suprarenals (male)	1,149	1,040	945	.9	.8	.8
Bladder (male)	2,825	2,725	2,493	2.2	2.2	2.1
Prostate	6,578	5,980	5,466	5.2	4.8	4.6
Testes	452	394	352	.4	.3	.3
Scrotum	30	34	44	(1)	(1)	(1)
Other male genitourinary organs	308	282	294	.2	.2	.2
Of the skin	3,315	3,358	3,137	2.6	2.7	2.6
Of other or unspecified organs	11,736	11,110	10,572	9.3	8.8	8.8
Kidneys and suprarenals (female)	835	812	762	.7	.6	.6
Bladder (female)	1,351	1,368	1,266	1.1	1.1	1.1
Brain	1,164	1,018	932	.9	.8	.8
Bones (except jaw)	1,832	1,814	1,639	1.4	1.4	1.4
Other or unspecified organs	6,524	6,098	5,973	5.2	4.9	5.0
Nonmalignant tumors	4,500	4,054	3,897	3.6	3.2	3.2
Ovary	183	156	167	.1	.1	.1
Uterus	2,707	2,484	2,432	2.1	2.0	2.0
Other female genital organs	8	3	12	(1)	(1)	(1)
Other organs	1,602	1,411	1,286	1.3	1.1	1.1
Tumors of which the nature is not specified	1,843	2,066	1,961	1.5	1.6	1.6
Ovary	18	21	22	(1)	(1)	(1)
Uterus	12	10	18	(1)	(1)	(1)
Other female genital organs	3	2	1	(1)	(1)	(1)
Other organs	1,810	1,973	1,920	1.4	1.6	1.6
<i>III. Rheumatic diseases, nutritional diseases, diseases of the endocrine glands, and other general diseases.</i>						
Acute rheumatic fever	42,568	41,614	40,983	33.7	33.1	34.1
Chronic rheumatism, osteoarthritis	2,330	2,570	2,601	1.8	2.0	2.2
Gout	1,695	1,615	1,501	1.3	1.3	1.2
Diabetes mellitus	2	3	1	(1)	(1)	(1)
Scurvy	28,000	26,835	26,368	22.1	21.3	22.0
Beriberi	36	28	33	(1)	(1)	(1)
Pellagra	5	1	5	(1)	(1)	(1)
Rickets	3,602	3,955	3,604	2.8	3.1	3.1
Osteomalacia	292	339	354	.2	.3	.3
Diseases of the pituitary body	21	18	13	(1)	(1)	(1)
Diseases of thyroid and parathyroid glands	117	70	60	.1	.1	(1)
Simple goiter	4,228	4,114	4,344	3.3	3.3	3.6
Exophthalmic goiter	247	277	290	.2	.2	.2
Others under this title	3,502	3,398	3,666	2.8	2.7	3.1
Diseases of the thymus gland	479	439	388	.4	.3	.3
Diseases of the adrenals (Addison's disease, not specified as tuberculous)	1,369	1,259	1,230	1.1	1.0	1.0
Other general diseases	347	366	357	.3	.3	.3
524	441	422	.4	.4	.4	.4
<i>IV. Diseases of the blood and blood-making organs.</i>						
Hemorrhagic conditions	10,250	10,186	9,866	8.1	8.1	8.2
Anemias	825	820	791	.7	.7	.7
Pernicious anemia	3,943	4,288	4,390	3.1	3.4	3.7
Other anemias	3,374	3,703	3,890	2.7	2.9	3.2
Leukemias and pseudoleukemias	569	585	500	.5	.5	.4
True leukemias	4,915	4,528	4,142	3.9	3.6	3.4
Pseudoleukemias (Hodgkin's disease)	3,403	3,088	2,802	2.7	2.5	2.3
Diseases of the spleen	1,512	1,440	1,340	1.2	1.1	1.1
Other diseases of blood and blood-making organs	430	412	431	.3	.3	.4
137	120	112	.1	.1	.1	.1
<i>V. Chronic poisonings and intoxications.</i>						
Alcoholism (acute or chronic)	3,655	3,297	3,049	2.9	2.6	2.5
Chronic poisoning by other organic substances	123	123	146	.1	.1	.1
Chronic poisoning by mineral substances	143	141	105	.1	.1	.1
Lead	118	117	78	.1	.1	.1
Others under this title	25	24	27	(1)	(1)	(1)
<i>VI. Diseases of the nervous system and of the organs of special sense.</i>						
Encephalitis (nonepidemic)	1,527	1,535	1,293	1.2	1.2	1.1
Meningitis	2,360	2,411	2,359	1.9	1.9	2.0
Simple meningitis	2,094	2,108	2,037	1.7	1.7	1.7
Nonepidemic cerebrospinal meningitis	266	303	322	.2	.2	.3
Progressive locomotor ataxia (tabes dorsalis)	1,151	1,126	1,188	.9	.9	1.0

See footnotes at end of table.

Provisional summary of mortality statistics for the United States for the years 1932, 1933, and 1934—Continued

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1934	1933	1932*	1934	1933	1932*
VI. Diseases of the nervous system—Contd.						
Other diseases of the spinal cord	3,137	3,014	3,026	2.5	2.4	2.5
Cerebral hemorrhage, cerebral embolism, and thrombosis	108,110	105,555	104,897	85.5	84.0	87.3
Cerebral hemorrhage	97,148	94,573	94,694	76.8	75.2	78.8
Cerebral embolism and thrombosis	6,392	5,930	5,397	5.1	4.7	4.5
Softening of brain	720	703	688	.6	.6	.6
Hemiplegia and other paralysis, cause unspecified	3,820	4,349	4,118	3.0	3.5	3.4
General paralysis of the insane	4,805	4,538	4,573	3.8	3.6	3.8
Dementia praecox and other psychoses	1,468	1,449	1,342	1.2	1.2	1.1
Epilepsy	2,913	2,724	2,842	2.3	2.2	2.4
Convulsions (under 5 years of age)	774	797	841	.6	.6	.7
Other diseases of the nervous system	3,929	3,751	3,367	3.1	3.0	2.8
Diseases of the organs of vision	91	85	77	.1	.1	.1
Diseases of the ear and mastoid process	4,100	3,974	3,860	3.2	3.2	3.2
Diseases of ear	2,543	2,404	2,322	2.0	1.9	1.9
Diseases of mastoid process	1,557	1,570	1,538	1.2	1.2	1.3
VII. Diseases of the circulatory system						
Pericarditis	709	879	907	.6	.7	.8
Acute endocarditis	3,574	3,433	3,559	2.8	2.7	3.0
Specified as acute	2,982	2,829	2,953	2.4	2.3	2.5
Unspecified (under 45 years of age)	592	604	606	.5	.5	.5
Chronic endocarditis, valvular diseases	57,762	58,902	61,335	45.7	46.9	51.0
Endocarditis, specified as chronic, and other valvular diseases	54,048	55,009	57,358	42.8	43.8	47.7
Endocarditis, unspecified (45 years and over)	3,714	3,863	3,977	2.9	3.1	3.3
Diseases of the myocardium	136,726	130,484	125,526	108.1	103.8	104.5
Acute myocarditis	4,800	4,357	4,375	3.8	3.5	3.6
Myocarditis, unspecified (under 45 years)	1,221	1,251	1,457	1.0	1.0	1.2
Chronic myocarditis, myocardial degeneration	99,679	94,720	91,181	78.8	75.4	75.9
Unspecified	31,026	30,156	28,513	24.5	24.0	23.7
Diseases of coronary arteries, angina pectoris	54,089	47,486	37,346	42.8	37.8	31.1
Angina pectoris	19,922	19,966	19,893	15.8	15.9	16.6
Diseases of coronary arteries	34,167	27,490	17,453	27.0	21.9	14.5
Other diseases of the heart	50,864	45,176	40,023	40.2	35.9	33.3
Functional diseases of heart	878	855	716	.7	.7	.6
Other and unspecified	49,986	44,321	39,307	39.5	35.3	32.7
Aneurysm (except of heart)	2,393	2,281	2,181	1.9	1.8	1.8
Arteriosclerosis (coronary arteries excepted)	22,696	21,062	20,534	18.0	16.8	17.1
Gangrene	900	959	924	.7	.8	.8
Other diseases of the arteries	1,684	1,529	1,526	1.3	1.2	1.3
Diseases of veins (varices, hemorrhoids, phlebitis, etc.)	715	700	608	.6	.6	.6
Diseases of lymphatic system (lymphangitis, etc.)	169	175	172	.1	.1	.1
Idiopathic anomalies of the blood pressure	743	655	529	.6	.5	.4
Other diseases of the circulatory system	272	283	249	.2	.2	.2
VIII. Diseases of the respiratory system						
Diseases of the nasal fossae and annexae	1,097	1,041	1,089	.9	.8	.9
Diseases of nasal fossae	375	311	381	.3	.2	.3
Others under this title	722	730	708	.6	.6	.6
Diseases of the larynx	522	504	488	.4	.4	.4
Bronchitis	4,145	4,062	4,338	3.3	3.2	3.6
Acute	1,422	1,276	1,597	1.1	1.0	1.3
Chronic	1,794	1,853	1,840	1.4	1.5	1.5
Unspecified	929	933	901	.7	.7	.8
Broncho-pneumonia (including capillary bronchitis)	41,923	37,209	39,174	33.2	29.6	32.6
Broncho-pneumonia	41,520	36,827	38,708	32.8	29.3	32.2
Capillary bronchitis	403	382	466	.3	.3	.4
Lobar pneumonia	54,794	45,740	49,524	43.3	36.4	41.2
Pneumonia, unspecified	3,856	4,000	3,776	3.1	3.2	3.1
Pleurisy	2,897	2,646	2,618	2.3	2.1	2.2
Congestion, edema, embolism, hemorrhagic infarct, thrombosis of lungs	2,051	1,963	1,798	1.6	1.6	1.5
Pulmonary embolism and thrombosis	511	536	442	.4	.4	.4
Others under this title	1,540	1,427	1,356	1.2	1.1	1.1
Asthma	1,983	1,863	1,804	1.6	1.5	1.5
Pulmonary emphysema	119	147	114	.1	.1	.1
Other diseases of the respiratory system (tuberculosis excepted)	1,492	1,373	1,212	1.2	1.1	1.0

See footnotes at end of table.

Provisional summary of mortality statistics for the United States for the years 1932, 1933, and 1934—Continued

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1934	1933	1932*	1934	1933	1932*
<i>IX. Diseases of the digestive system</i>						
Diseases of buccal cavity and annexa and of pharynx, tonsils	95,961	92,573	87,300	75.9	73.7	72.7
Diseases of pharynx and tonsils	5,970	5,680	5,191	4.7	4.5	4.3
Others under this title	4,904	4,747	4,350	4.0	3.8	3.6
Ulcer of stomach and duodenum	976	933	841	.8	.7	.7
Ulcer of stomach	169	155	140	.1	.1	.1
Ulcer of duodenum	7,620	7,539	7,192	6.1	6.0	6.0
Other diseases of stomach (cancer excepted)	5,328	5,197	4,909	4.2	4.1	4.1
Diarrhea and enteritis (under 2 years of age)	3,650	3,853	3,670	2.9	3.1	3.1
Diarrhea and enteritis (2 years and over)	17,019	15,707	14,375	13.5	12.5	12.0
Appendicitis	6,192	5,906	5,244	4.9	4.7	4.4
Hernia, intestinal obstruction	18,129	17,717	17,111	14.3	14.1	14.2
Hernia	13,023	12,607	12,269	10.3	10.0	10.2
Intestinal obstruction	5,093	4,931	4,863	4.0	3.9	4.0
Other diseases of intestines	7,930	7,676	7,406	6.3	6.1	6.2
Cirrhosis of liver	1,455	1,369	1,185	1.2	1.1	1.0
Other diseases of liver (including yellow atrophy of liver)	9,733	9,349	8,681	7.7	7.4	7.2
Yellow atrophy of liver	1,800	1,678	1,615	1.4	1.3	1.3
Others under this title	511	500	491	.4	.4	.4
Biliary calculi	1,289	1,178	1,124	1.0	.9	.9
Other diseases of gall-bladder, biliary passages	4,749	4,541	4,577	3.8	3.6	3.8
Diseases of pancreas	4,058	4,119	3,866	3.2	3.3	3.2
Peritonitis, cause not specified	746	677	677	.6	.5	.5
Peritonitis, cause not specified	1,578	1,616	1,307	1.2	1.3	1.3
<i>X. Diseases of the genitourinary system</i>						
Acute nephritis (including unspecified under 10 years of age)	125,171	121,572	120,631	99.0	96.7	100.4
Chronic nephritis	4,508	4,732	4,323	3.6	3.8	3.6
Nephritis, unspecified (10 years and over)	93,922	90,805	92,051	74.3	72.2	76.6
Other diseases of kidneys and ureters (puerperal diseases excepted)	8,154	8,727	8,377	6.4	6.9	7.0
Calculi of urinary passages	3,730	3,513	3,382	3.0	2.8	2.8
Diseases of bladder (tumor excepted)	1,372	1,238	1,183	1.1	1.0	1.0
Diseases of urethra, urinary abscess, etc.	740	750	751	.6	.6	.6
Disease of prostate	468	514	410	.4	.4	.3
Diseases of male genital organs, not specified as venereal	8,357	7,690	6,730	6.6	6.1	5.6
Diseases of female genital organs, not specified as venereal	135	109	125	1.0	.1	.1
Cysts of ovary	3,785	3,494	3,299	3.0	2.8	2.7
Other diseases of ovaries, diseases of tubes and parametrium	754	697	700	.6	.6	.6
Diseases of uterus	1,963	1,911	1,723	1.6	1.5	1.4
Nonpuerperal diseases of breast (cancer excepted)	943	814	787	.7	.6	.7
Others under this title	16	11	18	(1)	(1)	(1)
Others under this title	79	61	71	.1	(1)	.1
<i>XI. Diseases of pregnancy, childbirth, and the puerperal state</i>						
Abortion with septic conditions	12,859	12,885	13,293	10.2	10.3	11.1
Abortion without mention of septic conditions (to include hemorrhages)	2,204	2,037	2,057	1.7	1.6	1.7
Ectopic gestation	570	640	717	.5	.5	.6
Septic conditions specified	571	610	571	.5	.5	.5
Septic conditions not mentioned	106	121	108	.1	.1	.1
Other accidents of pregnancy (not to include hemorrhages)	465	489	463	.4	.4	.4
Puerperal hemorrhage	94	88	86	.1	.1	.1
Placenta praevia	1,404	1,339	1,392	1.1	1.1	1.2
Other puerperal hemorrhages	432	411	422	.3	.3	.4
Puerperal septicemia (not specified as due to abortion)	972	928	970	.8	.7	.8
Puerperal septicemia and pyemia	2,808	2,729	2,774	2.2	2.2	2.3
Puerperal tetanus	2,800	2,719	2,761	2.2	2.2	2.3
Puerperal albuminuria and eclampsia	8	10	13	(1)	(1)	(1)
Other toxemias of pregnancy	2,431	2,520	2,602	1.9	2.0	2.2
Puerperal phlegmasia, alba dolens, embolus, sudden death (not specified as septic)	559	535	499	.4	.4	.4
Other accidents of childbirth	561	592	628	.4	.5	.5
Other and unspecified conditions of puerperal state	1,621	1,750	1,827	1.3	1.4	1.5
	36	45	50	(1)	(1)	(1)

See footnotes at end of table.

Provisional summary of mortality statistics for the United States for the years 1932, 1933, and 1934—Continued

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1934	1933	1932*	1934	1933	1932*
<i>XII. Diseases of the skin and cellular tissue.</i>						
Furuncle, carbuncle.....	605	634	538	.5	.5	.4
Phlegmon, acute abscess.....	766	753	654	.6	.6	.5
Other diseases of skin and annex, and of cellular tissue.....	773	746	703	.6	.6	.6
<i>XIII. Diseases of the bones and organs of locomotion.</i>						
Osteomyelitis.....	1,694	1,596	1,606	1.3	1.3	1.3
Other diseases of the bones (tuberculosis excepted).....	1,115	1,071	1,070	.9	.9	.9
Diseases of joints and other organs of locomotion.....	189	177	179	.1	.1	.1
	350	348	357	.3	.3	.3
<i>XIV. Congenital malformations.</i>						
Congenital malformations.....	12,640	12,112	12,363	10.0	9.6	10.3
Congenital hydrocephalus.....	1,640	1,112	12,363	10.0	9.6	10.3
Spina bifida and meningocele.....	1,553	1,542	1,642	1.3	1.2	1.4
Congenital malformations of the heart.....	1,317	1,257	1,400	1.0	1.0	1.2
Others under this title.....	6,368	6,208	6,294	5.0	4.9	5.2
	3,302	3,105	3,027	2.6	2.5	2.5
<i>XV. Diseases of early infancy.</i>						
Congenital debility.....	54,348	51,453	51,571	43.0	40.9	42.9
Premature birth.....	4,223	4,067	3,860	3.3	3.2	3.2
Injury at birth.....	35,102	32,553	33,143	27.8	26.2	27.6
Other diseases peculiar to early infancy.....	9,860	9,506	9,681	7.8	7.6	8.1
	5,163	4,927	4,887	4.1	3.9	4.1
<i>XVI. Senility.</i>						
<i>XVII. Violent and accidental deaths.</i>						
Suicide.....	132,022	123,204	117,830	104.4	98.0	98.1
By solid or liquid poisons or by absorption of corrosive substances.....	18,828	19,993	20,927	14.9	15.9	17.4
By poisonous gas.....	2,960	3,141	3,320	2.3	2.5	2.8
By hanging or strangulation.....	2,374	2,694	3,001	1.9	2.1	2.5
By drowning.....	3,517	3,543	3,632	2.8	2.8	3.0
By firearms.....	872	980	996	.7	.8	.8
By cutting or piercing instruments.....	7,296	7,798	8,075	5.8	6.2	6.7
By jumping from high places.....	847	821	874	.7	.7	.7
By crushing.....	633	689	702	.5	.5	.6
By other means.....	147	141	156	.1	.1	.1
	182	186	171	.1	.1	.1
Homicide.....	12,055	12,124	11,035	9.5	9.6	9.2
By firearms.....	7,702	7,863	7,458	6.1	6.3	6.2
By cutting or piercing instruments.....	2,122	2,065	1,650	1.7	1.6	1.4
By other means.....	2,231	2,196	1,927	1.8	1.7	1.6
Accidental, other, or undefined.....	101,139	91,087	85,868	80.0	72.5	71.5
Attack by venomous animals.....	147	155	127	.1	.1	.1
Poisoning by food.....	738	680	638	.6	.5	.5
Absorption of poisonous gas.....	1,639	1,594	1,988	1.3	1.3	1.7
Supplemental.....	56	74	64	(1)	.1	.1
Other acute accidental poisonings (gas excepted).....	1,417	1,490	1,605	1.1	1.2	1.3
Conflagration.....	1,752	1,521	1,555	1.4	1.2	1.3
Burns (conflagration excepted).....	5,758	5,232	5,358	4.6	4.2	4.5
Supplemental.....	751	588	561	.6	.5	.5
Mechanical suffocation.....	1,055	934	904	.8	.7	.8
Supplemental.....	69	65	40	.1	.1	(1)
Drowning.....	6,006	6,219	6,199	4.8	4.9	5.2
Supplemental.....	1,320	1,246	1,228	1.0	1.0	1.0
Traumatism:						
By firearms (wounds or war excepted).....	3,023	3,026	2,928	2.4	2.4	2.4
By cutting or piercing instruments (wounds of war excepted).....	925	836	757	.7	.7	.6
Supplemental.....	329	265	230	.3	.2	.2
By fall, crushing, landslide.....	32,854	29,376	26,677	26.0	23.4	22.2
By fall.....	20,762	18,933	17,834	16.4	15.1	14.8
Supplemental.....	3,066	2,813	2,606	2.4	2.2	2.2
By crushing, landslide.....	613	556	502	.5	.4	.4
Supplemental.....	8,413	7,074	5,735	6.7	5.6	4.8
Cataclysm.....	117	503	404	.1	.4	.3
Injuries by animals.....	660	591	571	.5	.5	.5

See footnotes at end of table.

Provisional summary of mortality statistics for the United States for the years 1932, 1933, and 1934—Continued

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1934	1933	1932*	1934	1933	1932*
XVII. Violent and accidental deaths—Con.						
Accidental, other, or undefined—Continued.						
Hunger and thirst.....	21	39	27	(1)	(1)	(1)
Excessive cold.....	437	319	287	.3	.3	.2
Excessive heat.....	3,250	1,025	689	2.6	.8	.6
Lightning.....	442	372	362	.3	.3	.3
Due to electric currents.....	623	575	589	.5	.5	.5
Supplemental.....	100	104	86	.1	.1	.1
Other accidents.....	37,483	34,083	31,858	29.6	27.1	26.5
Foreign bodies.....	681	669	633	.5	.5	.5
Others under this title.....	4,558	4,311	3,835	3.6	3.4	3.2
Supplemental.....	32,244	29,103	27,390	25.5	23.2	22.8
Violent deaths of unknown nature.....	5	11	5	(1)	(1)	(1)
Wounds of war.....		2				
Legal executions.....	162	153	131	.1	.1	.1
XVIII. Ill-defined causes of death						
Sudden death.....	2,004	2,089	1,951	1.6	1.7	1.6
Cause of death not specified or ill-defined.....	18,925	19,939	19,048	15.0	15.9	15.9
Ill-defined.....	5,128	5,476	4,804	4.1	4.4	4.0
Not specified or unknown.....	13,797	14,463	14,244	10.9	11.5	11.9

The following tabulation is made in accordance with the requirements of the International Conference at Paris, 1929. The deaths included represent a reclassification of accidental deaths for comparison with figures reported in prior years.

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1934	1933	1932*	1934	1933	1932*
Accidents in mines and quarries.....						
Accidents from agricultural machinery.....	1,480	1,338	1,520	1.2	1.1	1.3
Elevator accidents.....	226	275	285	.2	.2	.2
Accidents from machinery used for recreation.....	231	217	218	.2	.2	.2
Other machinery accidents.....	14	8	14	(1)	(1)	(1)
Railroad and automobile collisions.....	1,139	931	878	.9	.7	.7
Other railroad accidents.....	1,457	1,437	1,466	1.2	1.1	1.2
Street car and automobile collisions.....	3,789	3,973	3,502	3.0	3.2	2.9
Other street car accidents.....	332	318	304	.3	.3	.3
Automobile accidents (primary).....	552	529	523	.4	.4	.4
Motorcycle accidents.....	33,980	29,323	26,350	26.9	23.3	21.9
Other land transportation accidents.....	332	285	241	.3	.2	.2
Water transportation accidents.....	1,202	1,235	1,131	1.0	1.0	.9
Air transportation accidents.....	1,186	1,029	1,122	.9	.8	.9

Deaths in the preceding table are included under their appropriate titles of the International List as shown in the following table:

Absorption of poisonous gas.....	56	74	64	(1)	0.1	0.1
Burns (conflagration excepted).....	751	588	561	0.6	.5	.5
Mechanical suffocation.....	69	65	40	.1	.1	(1)
Drowning.....	1,320	1,246	1,228	1.0	1.0	1.0
Cutting or piercing instruments.....	329	265	230	.3	.2	.2
Fall.....	3,066	2,813	2,606	2.4	2.2	2.2
Crushing.....	8,413	7,074	5,735	6.7	5.6	4.8
Due to electric currents.....	100	104	86	.1	.1	.1
Other accidents.....	32,244	29,103	27,390	25.5	23.2	22.8

* Included 96.3 percent of United States population.

† Less than $\frac{1}{10}$ of 1 per 100,000 population.

BACTERIOLOGICAL EXAMINATIONS OF OYSTERS AND WATER FROM NARRAGANSETT BAY DURING THE WIN- TER AND SPRING OF 1927-28

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During the winter of 1927-28, the United States Public Health Service, in connection with its investigations relating to the sanitary control of the shellfish industry, undertook a fairly extensive series of bacteriological examinations of oysters taken from selected beds in Narragansett Bay, with coincident examinations of the immediately overlying waters. The special purpose in view was to ascertain the relation between the bacteriological quality of oysters and that of the overlying water during the active marketing season in a northern area where low water temperatures are sustained.

METHODS

The field work was carried on jointly by the authors, on board the United States Public Health Service Laboratory launch *Shearwater*, which was used both for the collection and examination of samples. Oysters for examination were taken directly from their beds by means of a small hand dredge towed by the launch. Samples of the overlying waters were collected at the same time, both from the surface and from near the bottom.

The surface-water samples were collected primarily for comparison with similar samples collected in the same area during the previous summer, and also to ascertain in a rough way whether a material difference existed between the bacterial quality of surface water and that near the bottom. No material difference was found, and therefore the results of examinations of surface samples are omitted from this report.

In examination of the bottom-water samples, fermentation tests were made precisely as in the examination of oysters, using a total of 15 tubes for each sample. In the early months of the work, the amounts of water tested were 10 cc, 1 cc, and 0.1 cc, five tubes in each amount. It was found, however, that the 10-cc portions were almost uniformly positive. Hence after January 29, 1928, examinations were made in portions of 1 cc, 0.1 cc, and 0.01 cc, precisely as in the examination of oysters.

Examinations of the shell liquor of oysters were made strictly in accordance with the Standard Methods of the American Public Health Association, and all positive results in fermentation tubes, whether from water or from shell liquor, were confirmed by streaking on Endo plates and transfer to a second fermentation tube.

In addition to the regular standard examination of shell liquor, a series of parallel examinations was made of some samples to determine the bacteriological content of oyster meats. After draining away the oyster liquor for sampling in the regular way, the oyster meats were transferred to sterile Petri dishes, where they were cut into small pieces with a sterile knife. Enough cut-up material was transferred to a wide-mouth sampling bottle containing 200 cc sterile salt solution to bring the total volume to 400 cc, as nearly as possible without leaving part of an oyster out of the sample. The examination was then made in accordance with the Standard Methods for the examination of shucked oysters.

After February 3, the following procedure, which was much simpler and quicker, was adopted: After draining away the shell liquor for the regular examination, the adductor muscle was cut at each valve, permitting the oyster meat to slide from the valves into a wide-mouth sampling bottle containing 200 cc of sterile 2 percent salt solution. Whole meats were added to bring the total volume as close to 400 cc as possible. About a tablespoonful of sterilized bird shot was added, the glass stopper replaced on the bottle, and the bottle shaken until an emulsion was obtained. This agitation resulted in cutting out the stomach and intestinal tract, together with the softer parts of the oyster, and diffusing their contents through the solution from which the liquid quantities were taken for examination. The examination was then made in accordance with Standard Methods for examination of shucked oysters. While the results of these analyses are presented in the accompanying tables, a discussion of the findings as compared with standard examinations of shell liquor is deferred to some future time.

In the tabulations which follow, the results of both water and oyster examinations are expressed primarily in terms of the standard score set up by the American Public Health Association in its Standard Methods for Examination of Shellfish.¹ Parallel columns of the same tables, or separate tables, give the same results expressed in terms of "most probable numbers of *coli-aerogenes* per 100 cc" (referred to hereafter as MPN) as derived from McCrady's "Tables for rapid interpretation of fermentation tube tests."² Numbers calculated in this way correspond roughly to the *coli-aerogenes* index obtained when the standard score is multiplied by 20. The correspondence between this index and the MPN is, however, only approximate, because the ratio of the MPN to the score varies with different score values; and, moreover, the several combinations which give the same score may give quite different MPN'S. For instance, the *coli-aerogenes* index corresponding to a score of 14 is

¹ Report of Committee on Standard Methods for the Bacteriological Examination of Shellfish, Am. Jour. of Public Health, July 1922.

² Tables for rapid interpretation of fermentation tube results. By M. H. McCrady. The Public Health Journal (Canadian), vol. 9, May 1918.

280 ($=\text{score} \times 20$). There are, however, a number of different combinations of positive and negative fermentation tubes which give a score of 14; and considering only the combinations actually encountered in the examinations here recorded in the score 14 range, the MPN's varied from 170 to 350, the most frequent value being 350.

The variable relationship between the standard score and the MPN when both are calculated from the same fermentation tests is shown in detail in table A of the Appendix, which shows for each theoretically possible combination of positive and negative results in a set of 15 fermentation tubes (1) the resulting standard score and (2) the corresponding MPN. The scope of theoretically possible MPN values corresponding to each value of the score as derived from this table is shown graphically in figure 1. It may be noted that of the 216 possible combinations included in table A, only 37 were actually observed in this series of examinations, which comprises a total of 565 samples. Hence, for certain scores, the ranges of MPN values actually observed in this work were considerably narrower than is theoretically possible. The MPN ranges actually encountered in this work are shown in the summary below, and are included in the solid portions of the bars of figure 1. Ten percent of the water samples gave results which were "inconsistent"; i. e., one or more of the high dilution tubes were positive, although not all 5 of the next lower dilution tubes were positive—for example, 5-4-1 instead of 5-5-0. Among the oyster results, 17 percent were "inconsistent" figures.

The relationship between standard score and MPN's of *coliform aerogenes* per 100 cc, as actually observed in the water and oyster examinations here presented, is as shown below. The maximum figures were encountered much more frequently than the minimum figures.

Score	MPN as observed		Coli-aerogenes index ($=\text{score} \times 20$)
	Minimum	Maximum	
0-----	0	Less than 20	0
1-----	20	20	20
2-----	40	50	40
3-----	70	80	60
4-----	110	130	80
5-----	140	250	100
14-----	170	350	280
23-----	250	500	460
32-----	350	900	640
41-----	400	1,600	820
50-----	1,400	2,500	1,000
140-----	2,500	3,500	2,800
230-----	3,000	6,000	4,600
320-----	9,000	9,000	6,400
410-----	16,000	16,000	8,200
500+-----	18,000	18,000+	10,000

It is unnecessary here to enter into any general discussion of the methods of expressing results in scores or in MPN's. Both expressions are included in this study because the score is in general use for

reporting results of oyster examination, hence it is almost necessary to use it; but, on the other hand, expression in terms of MPN rests on a better scientific basis, gives data which are in some respects better adapted to statistical treatment, and expresses the results more

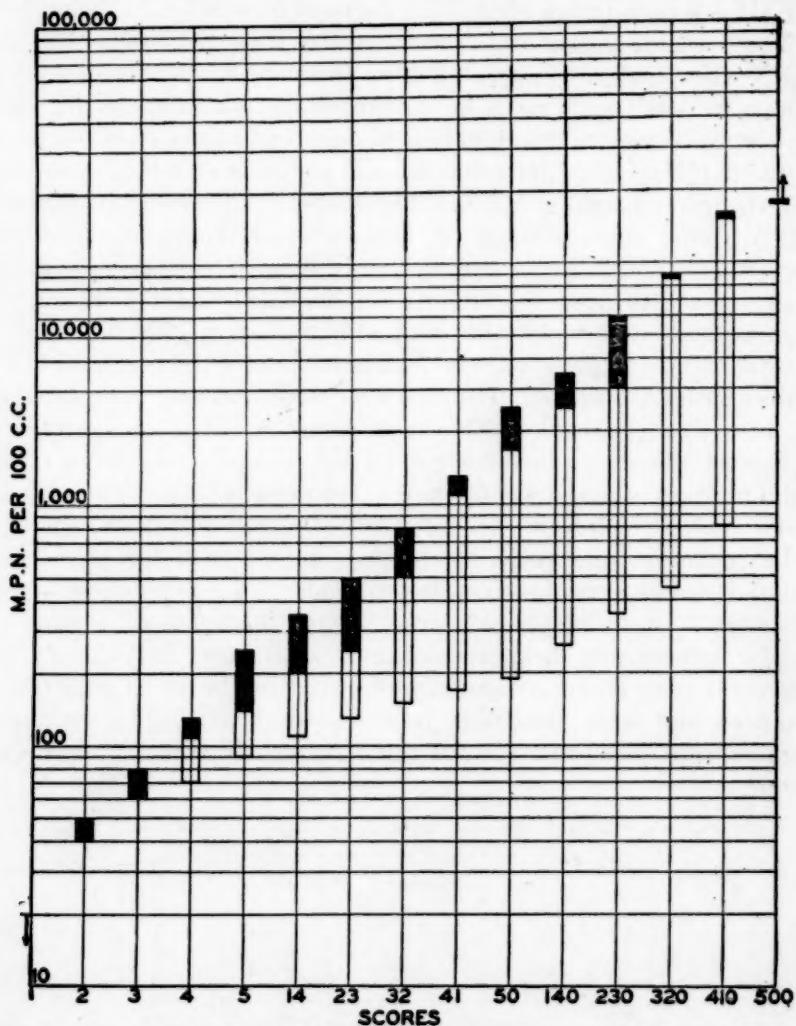


FIGURE 1.—Range of theoretically possible MPN values for each value in the standard score. Solid bars indicate ranges actually observed.

precisely. However, it will be shown later that, as regards final interpretations, it makes no great difference which method of statement is used.

AREA IN WHICH STUDIES WERE MADE

The stations from which samples were collected are shown in figure 2. The principal source of pollution affecting the area in which the samples were taken is the sewage from Providence, about

October 18, 1935

5 miles above the nearest regular collecting point, Station A. Float studies made during the course of this investigation showed that a float released at the outfall of the Providence sewage treatment plant reached the area in the vicinity of Station A on the second ebb tide,

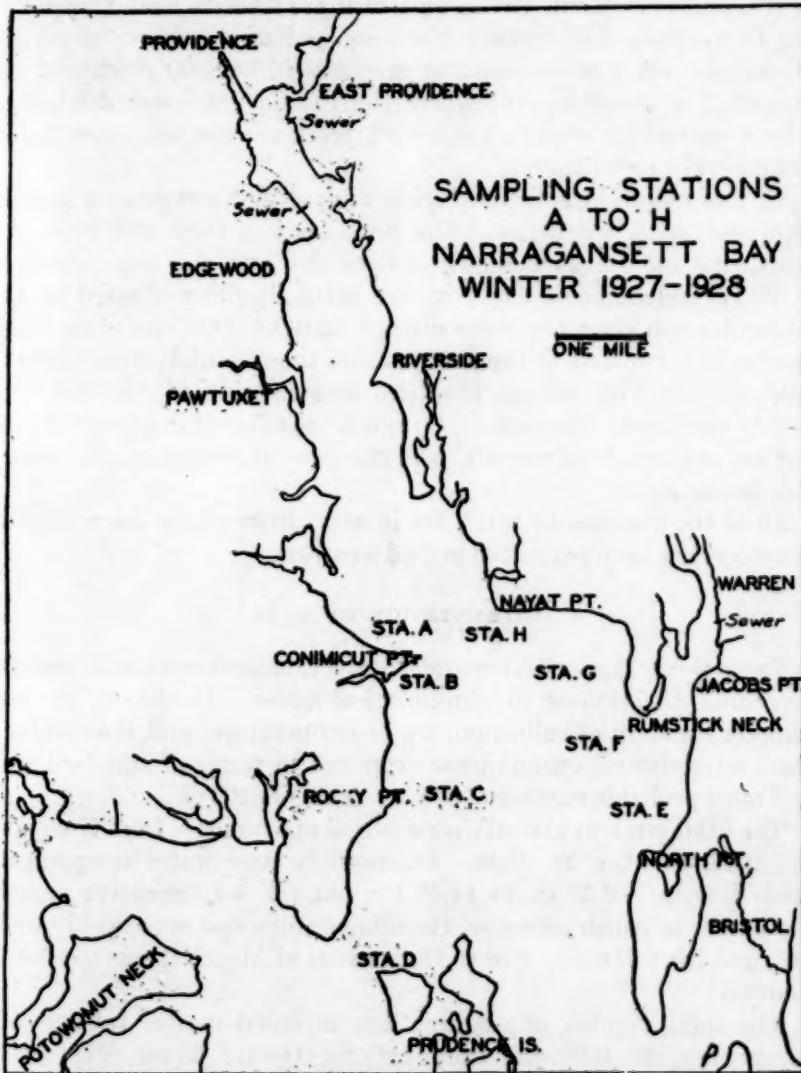


FIGURE 2.—Sampling stations.

that is, within about 18 hours. Practically all of the Providence sewage is passed through chemical precipitation tanks. The effluent is chlorinated but not completely sterilized.

Below Providence, a number of private sewers discharge directly into Providence River, and a small amount of sewage may at times

be contributed by the shipping on the bay. Station H, on account of its proximity to the ship channel, is probably exposed to this contamination more than any of the other stations.

In addition to these sources of pollution, there are the more distant sources on the Seekonk River, on which are located East Providence and Pawtucket, and, further upstream, pollution from cities on the Blackstone. A total population in excess of 680,000 resides on the watershed above the point where the Providence sewer discharges. A large part of the sewage, but not all, receives some treatment before it reaches the water courses.

All this pollution is rather highly diluted in Narragansett Bay by admixture with salt water. The tides carry it back and forth in a shuttlelike motion as it slowly moves out into the bay. Stations A, B, H, and G, being closer in, are naturally more affected by this contamination than the more distant stations. On the other hand, Station F is exposed to the sewage from the city of Warren, about 2 miles away. This sewage is settled and chlorinated, but not completely sterilized. Stations C, D, and E are affected in a lesser degree, but are not free from the effects of the general contamination noticeable in the area.

All of the stations except A are in areas from which the marketing of oysters has been permitted in cold weather.

PRESENTATION OF DATA

Table B (see Appendix) records all the examinations made, grouped according to stations in chronological order. It shows, for each sample, the date of collection, water temperature, and the results of the bacteriological examination expressed in terms of standard score and most probable number of *coli-aerogenes* per 100 cc.

The examinations extend over a period of 6 months, from November 21, 1927, to May 21, 1928. During this time water temperatures ranged from -2.5° C. to 14.4° C.; but for 5 consecutive months, December to April, inclusive, the temperature was consistently under 10° , and from January 4 to the latter part of March it was constantly under 5° .

The total number of examinations included in this table is 565, comprising the following examinations: Oyster liquor, 281; oyster meats, 89; and water samples, 195. There are 182 entries giving results of the examination of standard oyster samples and of corresponding water samples taken at the same time and place. In a few instances the results recorded for examination of oyster samples are the means of two oyster samples taken at the same time and place at which a single water sample was taken. This, however, is exceptional.

QUALITY OF WATER

The 8 principal sampling stations fall into 2 groups, separated on a definite geographic basis, namely, (1) in the upper bay, stations A, B, H, and G, and (2) in the lower bay, stations C, D, E, and F.

The results of bacteriological examination of the samples taken at both upper and lower stations are shown in tables 1 and 2, results in the former being expressed in terms of the standard score and in the latter in terms of MPN.

TABLE 1.—*Summary of results of examinations of water samples in "upper" and "lower" station groups*

Score	Number of samples giving indicated score at each station									
	Upper stations					Lower stations				
	A	B	G	H	Total, A, B, G, H	C	D	E	F	Total, C, D, E, F
0.....	0	1		1	2	5	2	0	1	8
1.....	1	1		1	3	3	3	2	4	12
2.....	0	0		2	2	1	4	0	5	10
3.....	3	0	2	1	6	2	0	3	2	7
4.....	3	1	2	6	12	2	1	1	6	10
5.....	5	2	2	8	17	1	3	1	5	10
14.....	4	4	3	8	19	5	3	1	1	10
23.....	1	0	0	6	7	3	0	3	2	8
32.....	2	0	6	4	12	1	1	1	2	5
41.....	2	1	1	5	9	0				
50.....	2			5	7	1			1	2
140.....			1	2	3					
230.....										
320.....										
410.....										
500.....									1	1
Total.....	23	10	17	49	99	24	17	12	30	83
Medians.....	5	9.5	14	14	14	4	2	4.5	4	4
Percentage under 3.....					7					36
Percentage over 5.....					58					32

TABLE 2.—*Summary of results of examinations of water samples in "upper" and "lower" station groups*

MPN per 100 cc	Number of samples showing indicated MPN									
	Upper stations					Lower stations				
	A	B	G	H	Total, A, B, G, H	C	D	E	F	Total, C, D, E, F
20 and under.....	1	1		2	4	7	5	2	4	18
21-40.....	0	1		2	3	1			1	2
41-80.....	3		2	2	7	3	4	3	7	17
81-160.....	3	1	2	5	11	2	1	1	6	10
161-320.....	4	2	4	8	18	2	4	1	5	12
321-640.....	6	4	1	14	25	6	2	4	3	15
641-1280.....	2		6	4	12	2	1	1	2	6
1281-2560.....	4	1	1	9	15	1			1	2
2561-5120.....			1	3	4					
5121-10240.....										
10241-20480.....									1	1
Total.....	23	10	17	49	99	24	17	12	30	83
Medians.....	350	350	350	350	350	130	50	190	130	130
Percentage under 81.....					8					36
Percentage over 250.....					55					29

It will be seen from tables 1 and 2 that the 4 upper stations as a group show materially higher pollution than the 4 lower stations. Considering scores under 3, or MPN under 81, as indicating fairly clean water, and scores over 5, or MPN in excess of 250, as indicative of rather gross pollution, it is noted that the water at the upper stations was usually found quite heavily polluted, while that at the lower stations was of distinctly better quality: though still subject at times to high pollution.

For purposes of studying bacteriological results in relation to temperature and season, the 6 months during which samples were taken are subdivided into 3 periods, namely, (1) November and December,³ temperatures ranging over 5°; (2) January 4 to March 25, temperatures constantly under 5°; and (3) March 27 to May 21, temperatures over 5°. The first and third of these periods are similar with respect to temperature range but different in that the first represents a period of falling temperature which has been preceded by a warm season while the third is a period of rising temperature following the winter season.

With respect to seasonal variation, both upper and lower stations show their highest pollution in the late fall, prior to December 12, while no material difference is shown between the winter period, January–March, and the spring period, March 26–May 21. Both periods show a better quality of water than the fall period. For all stations the median water scores for these periods are 23, 5, and 5, respectively.

RELATION OF WATER POLLUTION TO OYSTER POLLUTION

Table 3 presents, in the form of a correlation table, the scores found in 182 pairs of examinations, each pair including an oyster sample and a water sample collected at the same time and from the same place. Table 4 presents the results of the same examinations expressed in terms of MPN.

Referring to table 3 and figure 3, taking the whole season into consideration, it is seen that the water scores fall into a fairly symmetrical distribution, with a mode in the range of 5 to 14, while the distribution of oyster scores is highly skew, showing the greatest number of observations in the ranges 0 and 1. That is, the table shows what has long been recognized as a general fact, that oyster scores in cold weather are usually lower than corresponding water scores. The oyster scores, however, are more variable, so that values over 50 are encountered 11 times in oyster examinations as against 4 times in water samples. As the result of these occasional excessive high values, the arithmetic mean of the oyster scores is greatly dis-

³ No samples were taken between Dec. 12 and Jan. 4.

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torted, and is greater than the mean water score, notwithstanding that as a rule the oyster scores are lower. Omitting only the positive indeterminate scores (500+), the average oyster score is 15.2 and the

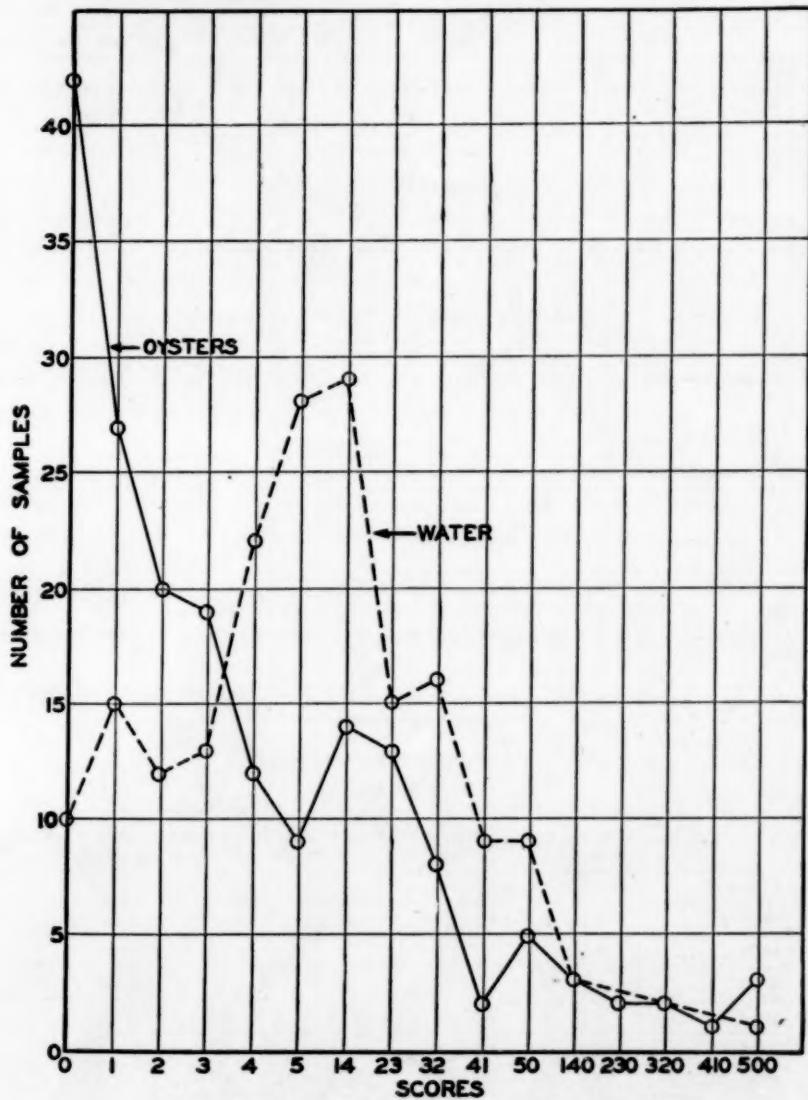


FIGURE 3.—Frequency distribution of water and oyster scores.

average water score 15.5. In dealing with results such as these, however, a comparison of medians or of geometric means is more instructive. The median water and oyster scores for the whole series are 5 and 3, respectively.

TABLE 3.—Correlation table, water and oyster scores¹—Total of 182 fall, winter, and spring samples[Coefficient of correlation = $+ .271 \pm .046$]

OYSTER SCORES

WATER SCORES	0	1	2	3	4	5	14	23	32	41	50	140	230	320	410	500+	Total
	2	5	2	1													10
0.....	2	5	2	1												2	15
1.....	6	2	2	2													12
2.....	8	2	1	1													13
3.....	2	4	2	1	1			2		1							22
4.....	5	2	5		2	2	2	3							1		28
5.....	7	4	2	4	2	2	3	2			1	1					29
14.....	5	4	3	4	1	2	4	1	1	1	1	1			1		15
23.....	3	1		3		1	1	1	2	1	1			1			16
32.....	3	1		1	1		1	4	2		1				1	1	9
41.....			1	1	2			2	2						1		3
50.....	1	1	2	1	1	2	1										9
140.....					2					1							3
230.....																	
320.....																	
410.....																	
500+.....		1															1
Total....	42	27	20	19	12	9	14	13	8	2	5	3	2	2	1	3	182

¹ Average scores such as 27.5 are regarded as falling into the next lower group, 23, rather than into the next higher.

TABLE 4.—Correlation table, water and oyster MPN's—Total of 182 fall, winter, and spring samples

[Coefficient of correlation = $+ .256 \pm .069$]

OYSTER MPN'S

Water MPN'S	Under 20	20-39	40-70	80-150	150-319	320-639	640-1,279	1,280-2,559	2,560-5,119	5,120-10,239	10,240-18,000+	Total
	2	5	2	1								10
Under 20.....	2	5	2	1								2
20-39.....	6	2	2	2						1		15
40-70.....	8	2	1	1						1		13
80-150.....	7	5	7	4	4	7						34
150-319.....	7	4	2	6	4	4	1	2	1			31
320-639.....	8	5	4	7	3	6	1	3	1	2		40
640-1,279.....	3	2			2	1	4	2	1		1	17
1,280-2,559.....	1	1	3	5	3	2	2				1	18
2,560-5,119.....				2				1				3
5,120-10,239.....												
10,240-18,000+....		1										1
Total.....	42	27	21	30	15	23	6	7	3	4	4	182

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As regards correspondence between water and oyster scores, inspection of table 3 and figure 3 shows a general tendency for oyster scores to increase as water scores increase, but with numerous instances of irregularity where high oyster scores correspond to low water scores and vice versa. The coefficient of correlation between oyster and water scores as derived from this table is $+0.271 \pm 0.046$. In calculating this coefficient, the class interval represented by the difference between any two successive scores in the standard scale is taken as unity. Thus, the same weight is given to the difference between scores of 1 and 2 as to the difference between scores of 5 and 14, or 50 and 140.⁴

This coefficient is significant in relation to its probable error, but of a rather low order, indicating what has previously been observed by inspection of table 3 and figure 3, namely, that water scores and oyster scores tend to some degree of correspondence when viewed broadly, but that, considered in detail, this correspondence is by no means close. A fact indicative of the rough general correspondence underlying the irregularity in individual results is that for all water samples scoring under 14 the mean oyster score is 19.6, and for all water samples scoring 14 or over, the mean corresponding oyster score is 34.8. In terms of MPN's, for waters having an MPN of 250 or less the mean oyster MPN is 637, while for waters having an MPN of over 250, the mean oyster MPN is 1,260. Also, by arranging the 182 pairs of water and oyster MPN's in order of water MPN magnitude in 4 approximately equal groups, and comparing the medians in each group, we find the following:

Number of samples	MPN median	
	Water	Oyster
38	20	20
42	130	50
58	350	80
44	1,600	225
182	250	75

⁴ For advice in regard to use of this procedure and for checking the calculation of the correlation coefficient, the writer is indebted to Dr. Lowell J. Reed, professor of biometry and vital statistics, the Johns Hopkins University School of Hygiene and Public Health.

These figures show that, under the conditions here operating, as the water contamination increases, oyster contamination also increases, but not at the same rate.⁵

In table 4 the data which have been presented in table 3 in terms of standard scores are restated in terms of most probable numbers of *coli-aerogenes* per 100 cc (MPN), grouped into geometric frequency distributions. The general picture is similar to that presented in table 3, and the coefficient of correlation is of the same order, its value being $+0.256 \pm 0.069$. In this calculation, as in that based on table 3, the class interval between successive groups in the geometric distribution has been taken as unity.⁶

It will be noted from tables 3 and 4 that water samples showed greater contamination than corresponding oyster samples in about two-thirds of the observations, and less contamination than oysters in about one-fourth of the observations. Occasionally, however, oyster samples show contamination *very much* greater than the water samples. Comparison of arithmetic means may, therefore, be misleading, due to the distortion by occasional excessively high oyster scores.

This relationship between the water and oyster analyses contained herein may also be summarized as follows:⁷

	Score	MPN
	Percent	Percent
Water samples showing greater contamination than oyster samples.....	64	68
Water samples showing equal contamination to oyster samples.....	9	5
Water samples showing less contamination than oyster samples.....	27	27
	100	100

⁶ In a group of samples reported to us by the Rhode Island Shellfish Commission during the winter of 1929-30, the following results are obtained when similarly grouped:

Number of samples	Median score	
	Water	Oyster
97	0	0
97	1	1
97	3	3
96	23	4
387	-----	-----

⁷ Acknowledgment is again made to Dr. Reed for advice as to procedure.

⁷ The results obtained by the Rhode Island Shellfish Commission in the winter of 1929-30 give:

	Percent
Water samples showing greater contamination than oyster samples.....	36.4
Water samples showing equal contamination to oyster samples.....	19.9
Water samples showing less contamination than oyster samples.....	43.7
	100

EFFECT OF TEMPERATURE ON RELATION BETWEEN OYSTER SCORE AND WATER SCORE

In table 3 the seasonal effects on the relation between water contamination and oyster contamination are obscured. They become more apparent in studying the fall, winter, and spring groupings

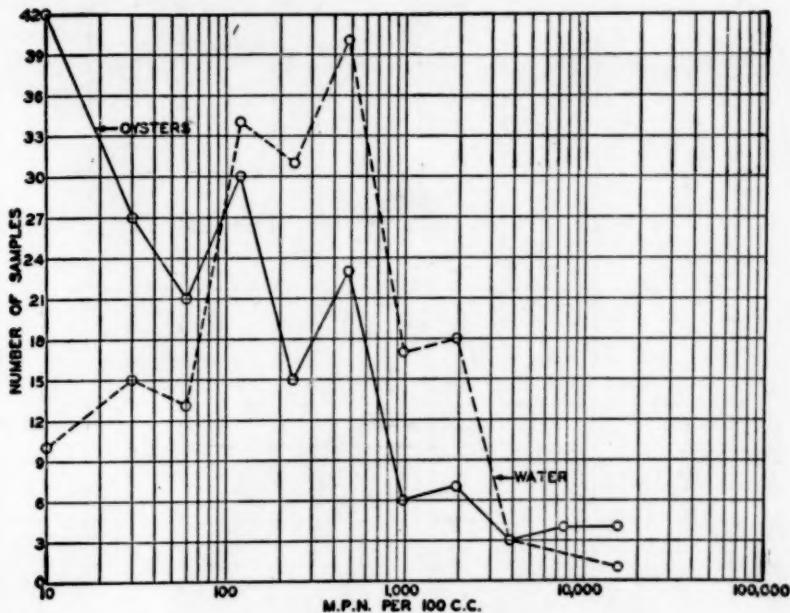


FIGURE 4.—Frequency distribution of water and oyster MPN's.

separately, as shown in tables 5 to 10, inclusive. It will be noted by inspection of tables 5 and 6 (fall results) that a rather high degree of correlation between water and oyster samples exists in this temperature range and season. This close correspondence disappears as the effects of cold weather are felt, as shown in tables 7 and 8 (winter results) and 9 and 10 (spring results).

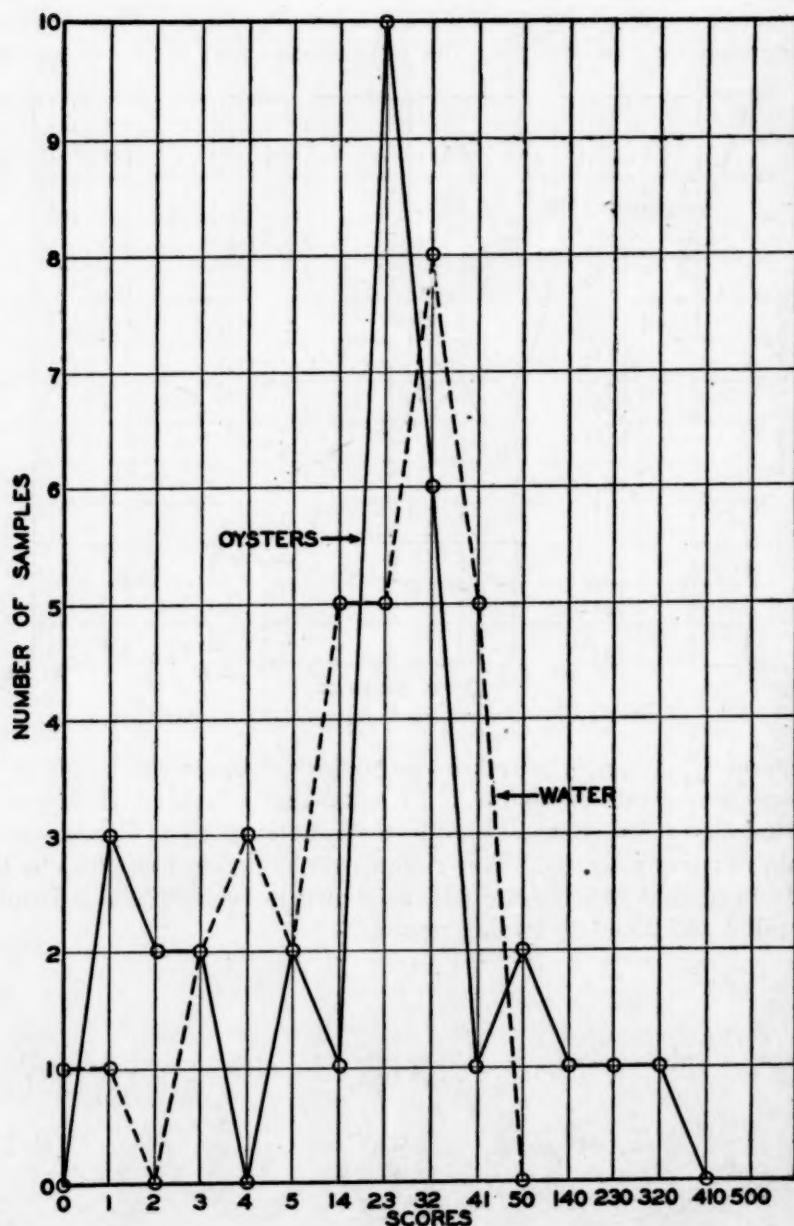


FIGURE 5.—Frequency distribution of water and oyster scores in the fall. Temperature of water above 5° C.

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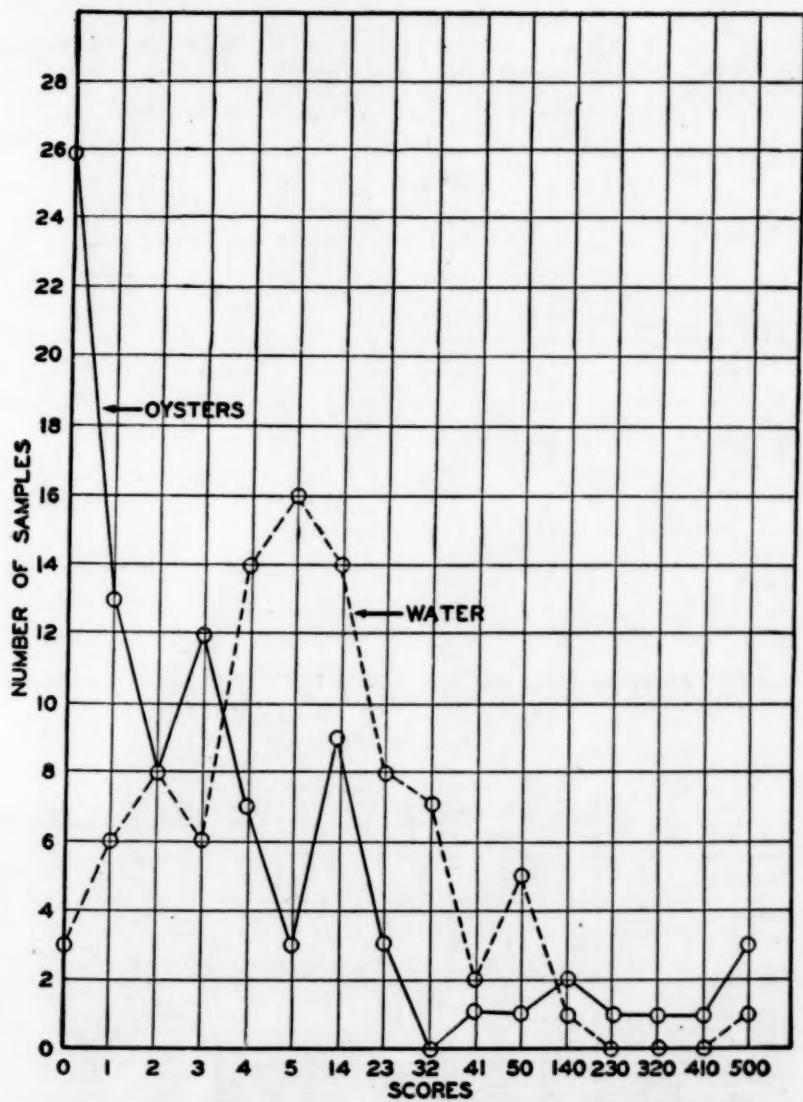


FIGURE 6.—Frequency distribution of water and oyster scores in the winter. Temperature of water below 5° C.

The difference is shown strikingly by comparing figures 5 and 6.

TABLE 5.—*Correlation table, water and oyster scores.—Fall samples (temperature above 5° C.)*

WATER SCORES	OYSTER SCORES															Total	
	0	1	2	3	4	5	14	23	32	41	50	140	230	320	410	500+	
0.....		1															1
1.....			1														1
2.....																	
3.....		1						1									2
4.....		1	1						1								3
5.....											1	1					2
14.....		1				2		1	1								5
23.....								1	2	1				1			5
32.....								4	2		1			1			8
41.....			1					3	1								5
50.....																	
140.....																	
230.....																	
320.....																	
410.....																	
500+.....																	
Total.....	—	3	2	2	—	2	1	10	6	1	2	1	1	1	—	—	32

TABLE 6.—*Correlation table, water and oyster MPN's.—Fall samples (temperature above 5° C.)*

WATER MPN'S	OYSTER MPN'S											Total	
	Under 20	20-39	40-79	80-159	160-319	320-639	640-1,279	1,280-2,559	2,560-5,119	5,120-10,239	10,240-18,000+		
Under 20.....			1										1
20-39.....				1									1
40-79.....													
80-159.....			2	1		1	1						5
160-319.....						1		1	1	1			4
320-639.....			1			1	3	2			1		8
640-1,279.....							4	2	1		1		8
1,280-2,559.....					1	1	1	2					5
2,560-5,119.....													
5,120-10,239.....													
10,240-18,000+.....													
Total.....	—	3	2	2	4	9	7	2	1	2	—	—	32

TABLE 7.—Correlation table, water and oyster scores—Winter samples (temperature 5° C., or lower)

OYSTER SCORES

WATER SCORES	OYSTER SCORES															Total		
	0	1	2	3	4	5	14	23	32	41	50	140	230	320	410	500+		
0.....	1	1		1													3	
1.....	2	1										1					2	6
2.....	5	1	1	1														8
3.....	2	2		1				1										6
4.....	5		1		2	1	2	2							1			14
5.....	4	3	1	3	2	1	1	1										16
14.....	2	1	2	2	1		3			1		1		1				14
23.....	2	1		3			1				1							8
32.....	2	1	1		1		1										1	7
41.....			1												1			2
50.....	1	1	1	1		1												5
140.....					1													1
230.....																		
320.....																		
410.....																		
500+.....		1																1
Total....	26	13	8	12	7	3	9	3		1	1	2	1	1	1	3		91

TABLE 8.—Correlation table, water and oyster MPN's—Winter samples (temperature 5° C., or lower)

OYSTER MPN'S

WATER MPN'S	OYSTER MPN'S												Total	
	Under 20	20-39	40-79	80-159	160-319	320-639	640-1,279	1,280-2,559	2,560-5,119	5,120-10,239	10,240-18,000+			
Under 20.....	1	1		1										3
20-39.....	2	1								1		2		6
40-79.....	5	1	1	1							1			9
80-159.....	7	2	1	3	1	5								19
160-319.....	4	3	2	4	2	2		1						18
320-639.....	4	2	3	5		3		1	1	1				20
640-1,279.....	2	2		1	1							1		7
1,280-2,559.....	1	1	2	1	1							1		7
2,560-5,119.....					1									1
5,120-10,239.....														
10,240-18,000+....		1												1
Total....	26	14	9	17	5	10		2	2	2	4			91

TABLE 9.—Correlation table, oyster and water scores—Spring samples (temperature above 5° C.)

OYSTER SCORES

WATER SCORES	0	1	2	3	4	5	14	23	32	41	50	140	230	320	410	500+	Total
	1	4	1														
0.....																	6
1.....		4	1	2	1												8
2.....		3	1														4
3.....			1	2		1						1					5
4.....				1	3			1									5
5.....		3	1	1	1			1	1	1							9
14.....		3	2	1	2				1				1				10
23.....		1					1										2
32.....		1			1												2
41.....						2											2
50.....				1		1	1	1									4
140.....						1						1					2
230.....																	
320.....																	
410.....																	
500+.....																	
Total....	16	11	11	5	5	4	3	1	1	1	2						59

TABLE 10.—Correlation table, oyster and water MPN's—Spring samples (temperature above 5° C.)

OYSTER MPN'S

WATER MPN'S	Under 20	20- 39	40- 79	80- 159	160- 319	320- 639	640- 1,279	1,280- 2,559	2,560- 5,119	5,120- 10,239	10,240- 18,000+	Total
	1	4	1									
Under 20.....		1	4	1								6
20-39.....		4	1	2	1							8
40-79.....		3	1									4
80-159.....			2	5	1	1	1					10
160-319.....		3	1	1	1	1	2					9
320-639.....		4	2	1	2	2			1			12
640-1,279.....		1			1							2
1,280-2,559.....				1	3	1	1					6
2,560-5,119.....					1				1			2
5,120-10,239.....												
10,240-18,000+....												
Total....	16	11	11	10	5	4		2				59

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The influence of temperature on the relation between bacterial contamination of oysters and that of overlying water is indicated in table 11, which shows for each temperature range the number of instances in which the oyster liquor showed contamination, less than, equal to, or greater than that of the corresponding water sample.

TABLE 11.—*Frequency of occurrence of oyster MPN (1) less than, (2) equal to, and (3) greater than MPN of corresponding water samples in various temperature ranges*

Temperature, ° C.	Number of pairs	Number of samples showing oyster MPN			Percent oyster samples less than water samples
		Less than water MPN	Greater than water MPN	Same as water MPN	
0 and under.....	15	12	2	1	87
0.1 to 1.....	29	24	4	1	86
1.1 to 2.....	16	10	3	3	81
2.1 to 3.....	23	15	7	1	70
3.1 to 4.....	10	5	5	0	50
4.1 to 5.....	9	5	4	0	55
5.1 to 6.....	16	11	4	1	76
6.1 to 7.....	7	5	1	1	86
7.1 to 8.....	5	5	0	0	100
8.1 to 9.....	8	3	5	0	37
9.1 to 10.....	22	13	8	1	64
10.1 to 11.....	5	5	0	0	100
11.1 to 12.....	14	10	3	1	79
12.1 to 14.....	3	2	1	0	67
Total.....	182	-----	-----	-----	-----

In most of the temperature ranges the number of observations is small and there is a good deal of irregularity in the relationship of oyster to water samples. When the observations are grouped in greater temperature ranges, the relationship becomes more regular, as shown in the following:

Temperature range	Number of observations ¹	Percent of oyster samples showing MPN coliformes less than water samples
2° C. and under.....	55	83.5
2.1°-7°.....	62	66
7.1°-14°.....	55	65

¹ Exclusive of pairs in which water sample and oyster sample gave identical results.

According to the above summary, the tendency of the oyster score to be less than the water score is most marked at temperatures under 2° C.

SUMMARY

1. From a study of water samples in shellfish growing areas of Narragansett Bay, it is apparent that the quality of the water is better in winter and early spring than it is in the late fall.

2. Just as the quality of the water is better in winter and spring than in the fall, so also does the quality of the oysters tend to improve. This tendency is perhaps more marked in the case of the oysters than in the case of the water. It should be noted, however, that the oyster results are likely to be more erratic in that excessively high scores are likely to occur rather frequently along with low scores.

3. There is a general tendency in northern oyster-growing areas during the marketing season for oyster scores to increase as water scores increase, and vice versa, when viewed broadly. In individual comparisons, differences may be extreme.

4. A marked improvement in the quality of oysters occurs within about 1° C. of the freezing point. This improvement was much more consistent at these lower ranges of temperature than at other cold-weather ranges.

ACKNOWLEDGMENTS

Acknowledgment is made of valuable assistance rendered by Dr. W. H. Frost, of the Johns Hopkins School of Public Health and Hygiene, and to Asst. Surg. Gen. C. E. Waller and Sanitary Engineer R. E. Tarbett, of the United States Public Health Service.

Appendix

TABLE A.—Combinations of fermentation tubes results from which each value of the standard score may be derived, and the most probable number (of coli-aerogenes per 100 cc) corresponding to each combination when tests are made in five tubes of each indicated amount

Score and index (-score $\times 20$)	Number of positives in each amount			MPN	Score and index (-score $\times 20$)	Number of positives in each amount			MPN
	1 cc	0.1 cc	0.01 cc			1 cc	0.1 cc	0.01 cc	
0 -----	0	0	0	1 0-26		4	0	0	1 130
1 (index=20) -----	1	0	0	1 20		3	1	0	1 110
	0	1	0	1 20		3	0	1	1 110
	0	0	1	20		2	2	0	90
	2	0	0	1 50		2	0	2	90
	1	1	0	1 40		2	1	1	90
2 (index=40) -----	1	0	1	40		1	3	0	80
	0	2	0	40	4 (index=80) -----	1	0	3	80
	0	1	1	40		1	2	1	80
	0	0	2	40		1	1	2	80
	3	0	0	1 80		0	4	0	80
	2	1	0	1 70		0	3	1	70
	2	0	1	60		0	2	2	80
	1	2	0	60		0	1	3	70
3 (index=60) -----	1	1	1	60		0	0	4	70
	1	0	2	60		5	0	0	1 250
	0	3	0	60		4	1	0	1 170
	0	2	1	60	5 (index=100) -----	4	0	1	170
	0	1	2	60		3	2	0	140
	0	0	3	60		3	1	1	140

¹ Indicates combinations actually observed.

TABLE A.—Combinations of fermentation tubes results from which each value of the standard score may be derived, and the most probable number (of coli-aerogenes per 100 cc) corresponding to each combination when tests are made in five tubes of each indicated amount—Continued

Score and index (=score×20)	Number of positives in each amount			MPN	Score and index (=score×20)	Number of positives in each amount			MPN
	1 cc	0.1 cc	0.01 cc			1 cc	0.1 cc	0.01 cc	
5 (index = 100).....	3	0	2	140		4	3	1	300
	2	3	0	120		4	2	2	300
	2	2	1	120		4	1	3	300
	2	1	2	120		4	0	4	300
	2	0	3	120		3	5	0	250
	1	4	0	110		3	4	1	250
	1	3	1	100		3	3	2	250
	1	2	3	100		3	2	3	250
	1	1	3	100		3	1	4	250
	1	0	4	100		2	5	1	200
	0	5	0	100	32 (index = 640).....	2	4	2	200
	0	4	1	100		2	3	3	190
	0	3	2	90		2	2	4	200
	0	2	3	90		2	1	5	190
	0	1	4	90		1	5	2	170
	0	0	5	90		1	4	3	170
	5	1	0	1350		1	3	4	170
	5	0	1	300		1	2	5	170
	4	2	0	1200		0	5	3	150
	4	1	1	200		0	4	4	150
	4	0	2	200		0	3	5	150
	3	3	0	170		5	4	0	1,300
	3	2	1	170		5	3	1	1,100
	3	1	2	170		5	2	2	950
	3	0	3	160		5	1	3	850
	2	4	0	140		5	0	4	750
	2	3	1	140		4	5	0	400
	2	2	2	140		4	4	1	400
14 (index = 280).....	2	1	3	150		4	3	2	400
	2	0	4	140		4	2	3	360
	1	5	0	130		4	1	4	350
	1	4	1	130		4	0	5	350
	1	3	2	120		3	5	1	300
	1	2	3	120		3	4	2	300
	1	1	4	120	41 (index = 820).....	3	3	3	300
	1	0	5	120		3	2	4	300
	0	5	1	120		3	1	5	300
	0	4	2	120		2	5	2	250
	0	3	3	110		2	4	3	250
	0	2	4	110		2	3	4	250
	0	1	5	110		2	2	5	250
	5	2	0	1500		1	5	3	200
	5	1	1	1450		1	4	4	200
	5	0	2	1200		1	3	5	190
	4	3	0	1250		0	5	4	170
	4	2	1	1250		0	4	5	170
	4	1	2	1250		0	3	5	170
	4	0	3	1250		0	2	5	170
	3	4	0	200		5	4	1	1,2500
	3	3	1	200		5	3	2	1,1700
	3	2	2	200		5	2	3	1,400
	3	1	3	200		5	1	4	1,200
	3	0	4	200		5	0	5	1,100
	2	5	0	170		4	5	1	450
23 (index = 460).....	2	4	1	170		4	4	2	450
	2	3	2	170		4	3	3	450
	2	2	3	170		4	2	4	420
	2	1	4	170	50 (index = 1,000)....	4	1	5	400
	2	0	5	160		3	5	2	330
	1	5	1	150		3	4	3	330
	1	4	2	150		3	3	4	330
	1	3	3	150		3	2	5	330
	1	2	4	150		2	5	3	290
	1	1	5	140		2	4	4	290
	0	5	2	140		2	3	5	280
	0	4	3	130		1	5	4	290
	0	3	4	130		1	4	5	290
	0	2	5	130		0	5	5	190
	5	3	0	1800		5	5	1	3,500
32 (index = 640).....	5	2	1	700		5	4	2	2,500
	5	1	2	600	140 (index = 2,800)....	5	3	3	1,750
	5	0	3	600		5	2	4	1,500
	4	4	0	1350		5	1	5	1,200

¹ Indicates combinations actually observed.

TABLE A.—Combinations of fermentation tubes results from which each value of the standard score may be derived, and the most probable number (of coli-aerogenes per 100 cc) corresponding to each combination when tests are made in five tubes of each indicated amount—Continued

Score and index (=score×20)	Number of positives in each amount			MPN	Score and index (=score×20)	Number of positives in each amount			MPN
	1 cc	0.1 cc	0.01 cc			1 cc	0.1 cc	0.01 cc	
140 (index = 2,800) ...	4	5	2	550	230 (index = 4,600) ...	4	4	4	600
	4	4	3	500		4	3	5	600
	4	3	4	500		3	5	4	400
	4	2	5	500		3	4	5	400
	3	5	3	360		2	5	5	350
	3	4	4	360		5	3	3	1,9,000
	3	3	5	400		5	4	4	3,500
	2	5	4	300		5	3	5	2,500
	2	4	5	300		4	5	4	700
	1	5	5	260		4	4	5	700
230 (index = 4,600) ...	5	5	2	1,6,000		3	5	5	450
	5	4	3	3,000		5	5	4	15,000
	5	3	4	2,000		5	4	5	4,500
	5	2	5	1,750		500+ (index =			
	4	5	3	650		10,000+) -----			5 18,000+

¹ Indicates combinations actually observed.

SUMMARY

Tubes	Score	Number MPN values		Tubes	Score	Number MPN values	
		Theoretically possible	Actually encountered			Theoretically possible	Actually encountered
0	0	1	1	8	32	27	3
1	1	3	2	9	41	25	3
2	2	6	2	10	50	21	2
3	3	10	2	11	140	15	2
4	4	15	3	12	230	10	2
5	5	21	3	13	320	6	1
6	14	25	3	14	410	3	1
7	23	27	4	15	500+	1	1

TABLE B.—Water and oyster examinations arranged chronologically by stations

STATION A—1,500 YARDS NORTH OF CONIMICUT POINT

Date	Tempera-ture (water) ° C.	Oyster results				Water results		
		Liquor		Meats		Score	MPN	Den-sity
		Score	MPN	Score	MPN			
Nov. 21, 1927	10	23	250	-	-	41	1,600	1.019
Jan. 5, 1928	2	3	70	-	-	41	1,600	18
Jan. 9, 1928	2.5	500+	18,000+	-	-	1	20	19
Jan. 9, 1928	2.5	410	16,000	-	-	-	-	18
Jan. 10, 1928	3	140	3,500	-	-	-	-	18
Jan. 11, 1928	3	5	250	-	-	-	-	18
Jan. 12, 1928	3	4	130	-	-	-	-	18
Jan. 16, 1928	2	14	350	-	-	14	350	20
Jan. 17, 1928	3.5	0	-	-	-	-	-	19
Jan. 18, 1928	4	410	16,000	-	-	-	-	18
Jan. 19, 1928	2.5	14	200	-	-	-	-	18
Jan. 23, 1928	1.5	1	20	-	-	-	-	19
Jan. 24, 1928	0	1	20	-	-	-	-	18
Jan. 25, 1928	3	0	-	-	-	-	-	19
Jan. 26, 1928	2	0	-	-	-	-	-	19
Jan. 30, 1928	-0.5	23	500	-	-	-	-	19
Jan. 31, 1928	-0.5	2	50	-	-	-	-	20
Feb. 1, 1928	-0.5	1	20	-	-	-	-	16
Feb. 2, 1928	1	1	20	-	-	-	-	20

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TABLE B.—*Water and oyster examinations arranged chronologically by stations—Continued*

STATION A—1,500 YARDS NORTH OF CONIMICUT POINT—Continued

Date	Temper- ature (water) ° C.	Oyster results				Water results		
		Liquor		Meats		Score	MPN	Den- si- ty
		Score	MPN	Score	MPN			
Feb. 6, 1928	0	0				23	500	18
Feb. 7, 1928	0	4	110			4	130	19
Feb. 8, 1928	2	140	3,500			14	350	19
Feb. 13, 1928	1	3	80			50	2,500	20
Feb. 14, 1928	2	4	140			23	800	19
Feb. 15, 1928	2	3	80			3	80	20
Feb. 16, 1928	4	1	20			5	250	19
Feb. 20, 1928	2	0		0		3	80	21
Feb. 21, 1928	1	3	70	0		5	250	
Feb. 22, 1928	0	1	20	0		5	250	18
Feb. 27, 1928	1	4	110	32	700	5	170	19
Feb. 28, 1928	1	0		0		4	130	18
Feb. 29, 1928	1	4	130	0		5	170	19
Mar. 1, 1928	2	0		0		32	800	18
Mar. 5, 1928	1	1	20	0		3	80	20
Mar. 6, 1928	0	2	50	3	80	14	350	20
Mar. 7, 1928	1	1	20	2	50	50	1,700	20
Mar. 8, 1928	1	0		1	20	14	350	20
Apr. 19, 1928	7	1	20			4	130	225

STATION B—2,000 YARDS SOUTH OF CONIMICUT POINT

Nov. 23, 1927	10	140	3,500			5	250	1.010
Nov. 30, 1927	10	2	50			1	2	20
Dec. 12, 1927	5	23	500			41	1,600	18
Jan. 4, 1928	1	2	50			14	350	19
Jan. 5, 1928	2	3	80					20
Jan. 9, 1928	2.5	5	250					18
Jan. 11, 1928	3	4	130			14	350	20
Jan. 12, 1928	3	3	80			14	350	
Jan. 16, 1928	2	2	50					20
Jan. 17, 1928	3	2	50					19
Jan. 18, 1928	4	140	3,500					18
Jan. 19, 1928	2.5	5	250					18
Jan. 23, 1928	1.5	0						19
Jan. 25, 1928	3	0				1.4	35	19
Jan. 31, 1928	-0.5	1	20					18
Feb. 1, 1928	-0.5	1	20					16
Feb. 2, 1928	1	1	20					19
Apr. 10, 1928	6.5	0		1	20	5	250	20
Apr. 25, 1928	7.2	2	50			4	130	22
Apr. 25, 1928	8	0				14	350	19

STATION C—1,500 YARDS NORTHEAST OF ROCKY POINT

Nov. 23, 1927	10	23	500			14	350	19
Nov. 23, 1927	10	41	1,300			23	600	19
Nov. 30, 1927	10	3	80			1	20	20
Nov. 30, 1927	10	2	50			4	130	20
Dec. 12, 1927	6	5	250			14	250	19
Jan. 4, 1928	1	50	2,500			23	500	19
Jan. 5, 1928	2	0				14	350	20
Jan. 5, 1928	2	32	800					
Jan. 9, 1928	2.5	14	200			14	200	18
Jan. 10, 1928	3	600+	18,000+			1.4	35	20
Jan. 11, 1928	3	0						
Jan. 12, 1928	3	2	50					
Jan. 16, 1928	3	1	20					
Jan. 17, 1928	4	0						
Jan. 18, 1928	4	410	16,000					
Jan. 19, 1928	2.5	4	90					
Jan. 23, 1928	1.5	1	20					
Jan. 23, 1928	1.5	0						
Jan. 25, 1928	3	0				0		
Jan. 25, 1928	3	3	80			0		
Jan. 30, 1928	-2.5	4	130			4	130	1.019

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TABLE B.—*Water and oyster examinations arranged chronologically by stations—Continued*

STATION C—1,500 YARDS NORTHEAST OF ROCKY POINT—Continued

Date	Temper- ature (water) °C.	Oyster results				Water results		
		Liquor		Meats		Score	MPN	Den- sity
		Score	MPN	Score	MPN			
Jan. 31, 1928.	-0.5	0						
Feb. 1, 1928.	-0.5	0						
Feb. 2, 1928.	1	0						
Apr. 16, 1928.	7	2	50			1	20	235
Apr. 23, 1928.	6.7	0				32	800	22
Apr. 26, 1928.	8	0				2	50	22
May 1, 1928.	8.9	14	200			14	350	175
May 2, 1928.	11.1	3	80			14	350	12
May 3, 1928.	11.6	2	50			50	2,500	17
May 8, 1928.	11.1	5	170			23	500	205
May 10, 1928.	10	0				5	250	20
May 14, 1928.	10	2	50			0	0	23
May 15, 1928.	12.2	1	20			0	0	22
May 16, 1928.	14.4	1	20			0	0	22
May 17, 1928.	13.4	2	50			3	80	22
May 21, 1928.	12	2	50			3	80	22

STATION D—500 FEET NORTH OF PATIENCE ISLAND

Jan. 4, 1928.	1	14	200			32	900	19
Jan. 4, 1928.	1	14	200			5	250	19
Jan. 5, 1928.	2	0				2.3	50	20
Jan. 10, 1928.	3	41	1,300					
Jan. 11, 1928.	3	0						
Jan. 12, 1928.	3	3	80					
Jan. 16, 1928.	3	1	20			14	350	
Apr. 12, 1928.	6	1	20			14	350	22
Apr. 18, 1928.	6	0				1	20	24
Apr. 26, 1928.	7.5	0				2	50	225
May 1, 1928.	8.3	2	50			1	20	215
May 2, 1928.	11.1	0				1	20	20
May 3, 1928.	11.6	2	50			3	50	17
May 8, 1928.	11.1	14	500			5	170	20
May 10, 1928.	10	3	80			5	250	21
May 14, 1928.	10.5	1	20			2	50	23
May 15, 1928.	12	1	20			0	0	20
May 16, 1928.	12.2	0				0	0	23
May 17, 1928.	13.4	0				2	50	22
May 21, 1928.	12	5	170			4	130	22

STATION E—200 FEET WEST OF DEYER ROCK

Nov. 30, 1927.	10	1	20			3	80	1,020
Dec. 7, 1927.	7	32	500			23	600	21
Dec. 12, 1927.	6	23	350			32	900	19
Jan. 5, 1928.	2	1	20			3	80	20
Jan. 9, 1928.	2.5	3	80					18
Jan. 10, 1928.	3	50	2,500					20
Jan. 12, 1928.	3	14	350					
Jan. 16, 1928.	2.5	0						20
Feb. 6, 1928.	1	3	80	4	110	23	500	20
Feb. 7, 1928.	0	14	350	2	40	4	130	20
Apr. 23, 1928.	4.5	14	350			3	80	23
May 1, 1928.	8.9	0				14	350	18
May 2, 1928.	11.6	0				5	250	145
May 3, 1928.	11.6	0				23	500	16
May 8, 1928.	10	3	80			1	20	22
May 10, 1928.	9.4	1	20			1	20	225

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TABLE B.—*Water and oyster examinations arranged chronologically by stations—Continued*

STATION F—100 FEET WEST OF RUMSTICK SHOAL LIGHT BUOY

Date	Temper- ature (water) ° C.	Oyster results				Water results		
		Liquor		Meats		Score	MPN	Den- sity
		Score	MPN	Score	MPN			
Nov. 22, 1927	9	50	1,700	—	—	32	900	20
Nov. 30, 1927	10	1	20	—	—	4	130	20
Dec. 7, 1927	6	14	350	—	—	3.2	80	—
Dec. 12, 1927	6	23	500	—	—	23	600	19
Jan. 9, 1928	2.5	5	170	—	—	4.5	130	18
Jan. 10, 1928	3	500+	18,000+	—	—	32	900	20
Jan. 12, 1928	3	5	170	—	—	—	—	—
Jan. 16, 1928	2.5	2	50	—	—	4.1	130	19
Feb. 6, 1928	0.5	0	—	3	80	5	170	19
Feb. 7, 1928	0	—	—	0	—	5	250	20
Feb. 13, 1928	1	5	250	320	9,000	5	250	21
Feb. 13, 1928	1	1	20	1	20	—	—	21
Feb. 14, 1928	2	1	20	0	—	1	20	20
Feb. 14, 1928	2	1	20	0	—	—	—	20
Feb. 15, 1928	3	0	—	5	170	2	50	20
Feb. 15, 1928	3	1	20	0	—	—	—	20
Feb. 16, 1928	3	0	—	500+	18,000+	50	2,500	18
Feb. 16, 1928	3	1	20	23	500	—	—	18
Feb. 16, 1928	2	1	20	2	50	2	50	21
Feb. 21, 1928	0.5	0	—	3	70	4	130	—
Feb. 22, 1928	0	0	—	0	—	2	50	19
Feb. 29, 1928	1	23	500	32	700	4	130	20
Mar. 1, 1928	1.5	0	—	0	—	1	20	20
Mar. 5, 1928	1	0	—	3	80	2	50	20
Mar. 6, 1928	0	3	80	1	20	2	50	20
Mar. 7, 1928	1	500+	18,000+	500+	18,000+	1	20	20
Mar. 8, 1928	1	1	20	0	—	0	—	1,020
Mar. 15, 1928	4	1	20	0	—	500+	18,000+	19
Mar. 20, 1928	3	0	—	0	—	4	130	20
Mar. 21, 1928	3	14	350	5	250	23	500	21
Mar. 22, 1928	3.5	23	450	1	20	5	250	23
Mar. 26, 1928	6.25	0	—	0	—	1	20	215
Mar. 27, 1928	5.5	4	130	0	—	3	80	22
Mar. 28, 1928	5	50	2,500	41	1,300	14	350	21
Mar. 29, 1928	5	1	20	0	—	5	170	195

STATION G—1,500 YARDS SOUTHWEST OF BARRINGTON BEACH

Nov. 22, 1927	9	50	2,500	—	—	5	250	20
Nov. 22, 1927	9	320	9,000	—	—	32	900	20
Nov. 23, 1927	10.5	32	700	—	—	32	900	18
Nov. 29, 1927	10.5	32	800	—	—	41	1,600	19
Nov. 29, 1927	10.5	23	500	—	—	—	—	19
Nov. 29, 1927	10.5	14	200	—	—	32	900	19
Nov. 29, 1927	10.5	23	500	—	—	—	—	19
Nov. 30, 1927	10	23	250	—	—	4	130	20
Dec. 7, 1927	6	32	800	—	—	14	250	185
Dec. 7, 1927	6	5	250	—	—	14	350	—
Dec. 7, 1927	6	23	500	—	—	32	900	18
Dec. 12, 1927	6	32	800	—	—	32	900	19
Jan. 4, 1928	1	5	250	—	—	—	—	—
Jan. 9, 1928	2.5	5	170	—	—	—	—	18
Jan. 10, 1928	3	410	16,000	—	—	—	—	—
Jan. 12, 1928	3	3	80	—	—	—	—	—
Jan. 16, 1928	3	2	50	—	—	—	—	20
Feb. 6, 1928	0.5	0	—	—	—	—	—	17
Feb. 7, 1928	0	0	—	—	—	—	—	20
Mar. 15, 1928	4	4	130	0	—	140	3,500	19
Mar. 20, 1928	3	0	—	0	—	32	800	20
Mar. 21, 1928	4	14	350	230	3,000	14	200	21
Mar. 22, 1928	3.5	14	350	32	800	4	130	23
Mar. 27, 1928	6	1	20	0	—	3	80	21
Mar. 28, 1928	5	32	800	3	80	3	80	21
Mar. 29, 1928	5	2	50	0	—	5	250	20

TABLE B.—*Water and oyster examinations arranged chronologically by stations—Continued*

STATION H—1,500 YARDS SOUTH OF NAYAT POINT

Date	Temper- ature (water) ° F.	Oyster results				Water results		
		Liquor		Meats		Score	MPN	Den- sity
		Score	MPN	Score	MPN			
Nov. 22, 1927	48.2	230	6,000			23	600	21
Nov. 23, 1927	50	23	450			32	900	19
Nov. 29, 1927	50.9	4	130			41	1,600	17
Nov. 29, 1927	50.9	3	70					17
Nov. 30, 1927	50	1	20			14	350	20
Dec. 7, 1927	42.8	32	800			23	600	1,0185
Dec. 12, 1927	42.8	32	800			41	1,600	19
Jan. 4, 1928	33.8	32	800					
Jan. 5, 1928	35.6	3	70					
Jan. 9, 1928	36.5	14	200					
Jan. 10, 1928	37.4	230	6,000					20
Jan. 12, 1928	37.4	4	130					
Jan. 16, 1928	37.4	2	50					18
Jan. 17, 1928	38.3	23	500	140	3,500	5	170	19
Jan. 17, 1928	38.3	3	80					19
Jan. 17, 1928	38.3	14	200					19
Jan. 18, 1928	40.1	140	3,500	320	9,000	4.1	40	19
Jan. 18, 1928	40.1	410	16,000	32	800			19
Jan. 19, 1928	37.4	1	20	0		14	350	20
Jan. 19, 1928	37.4	2	50	3	70			20
Jan. 23, 1928	34.7	3	70	1	20			19
Jan. 23, 1928	34.7	1	20	0				19
Jan. 24, 1928	32	0		0		4.1	110	19
Jan. 24, 1928	32	0		0				19
Jan. 25, 1928	35.6	0		0		5	170	19
Jan. 26, 1928	35.6	0		0				19
Jan. 30, 1928	27.5	0		0				19
Jan. 30, 1928	27.5	2	50	1	20	32	800	19
Jan. 31, 1928	31	2	50	0		5	250	18
Jan. 31, 1928	31	3	80	3	80			18
Feb. 1, 1928	31	1	20	3	80	50	2,500	16
Feb. 1, 1928	31	3	80	2	50			15
Feb. 2, 1928	32.8	1	20	0		32	800	19
Feb. 2, 1928	32.8	1	20	4	130			19
Feb. 6, 1928	32	3	80					18
Feb. 7, 1928	32	0						19
Feb. 8, 1928	35.6	23	500	5	250	4	130	20
Feb. 13, 1928	33.8	2	50					20
Feb. 14, 1928	35.6	14	200					19
Feb. 15, 1928	35.6	3	80					20
Feb. 16, 1928	39.2	0						
Feb. 20, 1928	36.5	1	20	3	80	5	250	21
Feb. 21, 1928	33.8	3	80	0		5	250	
Feb. 22, 1928	32	0		0		3	80	19
Feb. 27, 1928	33.8	2	50	0		2	50	19
Feb. 28, 1928	33.8	0		0		23	500	18
Feb. 29, 1928	33.8	1	20	1	20	23	500	19
Mar. 1, 1928	35.6	3	80	0		23	500	18
Mar. 5, 1928	35.6	0		50	2,500	2	50	20
Mar. 6, 1928	32	0		50	2,500	4	130	1,020
Mar. 7, 1928	33.8	2	50	0		41	1,300	20
Mar. 8, 1928	33.8	0		3	80	14	350	20
Mar. 12, 1928	35.6	3	80	0		23	500	19
Mar. 15, 1928	35.6	5	250	4	130	50	1,700	18
Mar. 20, 1928	37.4	3	70	0		14	350	20
Mar. 21, 1928	39.2	320	9,000	320	9,000	14	350	20
Mar. 22, 1928	38.3	0		0		5	170	23
Mar. 27, 1928	42.8	0		0		1	20	21
Mar. 28, 1928	41.0	14	350	23	500	50	2,500	21
Mar. 29, 1928	41.9	0		1	20	14	350	21
Apr. 17, 1928	44.0	2	50			4	130	23
Apr. 24, 1928	45.0	4	130			41	1,300	17
Apr. 30, 1928	47.3	50	2,500			140	3,500	11
May 1, 1928	50	4	130			41	1,300	215
May 2, 1928	52.8	4	130			50	1,400	105
May 3, 1928	52.0	5	170			50	2,500	14
May 7, 1928	50	4	110			140	3,500	18
May 8, 1928	52	3	80			14	350	20
May 10, 1928	50	3	80			32	800	22
May 14, 1928	50	1	20			14	350	215
May 15, 1928	54	2	50			4	130	205
May 16, 1928	56	1	20			0		22
May 17, 1928	54	23	500			5	250	215
May 21, 1928	51.8	5	170			5	250	25

October 18, 1935

TABLE B.—*Water and oyster examinations arranged chronologically by stations—Continued*

BULLOCK'S POINT

Date	Temper- ature (water) ° C.	Oyster results				Water results		
		Liquor		Meats		Score	MPN	Den- sity
		Score	MPN	Score	MPN			
Dec. 12, 1927	5	41	1,300	—	—	41	1,600	14
Jan. 4, 1928	1	41	1,300	—	—	—	—	Q ¹
Jan. 4, 1928	1	41	1,300	—	—	—	—	Q ¹
May 14, 1928	10.5	3	80	—	—	32	800	21Q
May 15, 1928	12.2	5	170	—	—	41	1,300	20Q
May 16, 1928	14.4	3	350	—	—	140	2,500	22Q
May 17, 1928	14	4	130	—	—	140	3,500	17Q
May 21, 1928	12	3	80	—	—	140	3,500	18Q
May 21, 1928	12	3	80	—	—	32	800	18Q

MIDDLE OF BAY

Nov. 23, 1927	10	41	1,300	—	—	14	1,600	19
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OFF ALLENS HARBOR

Jan. 11, 1928	3	1	20	—	—	0.4	13	1.021
Jan. 11, 1928	3	1	20	—	—	—	—	20
Jan. 11, 1928	3	2	80	—	—	3.2	80	20

STATION 1-A.—800 YARDS NORTHEAST RHODE ISLAND YACHT CLUB

Jan. 20, 1928	1	32	800	4	170	140	3,500	18
Mar. 1, 1928	2.5	14	500	4	110	230	6,000	16

¹ Q = Quahogs, or hard clams.

DEATHS DURING WEEK ENDED SEPT. 28, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Sept. 28, 1935	Correspond- ing week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,141	7,280
Deaths per 1,000 population, annual basis	9.9	10.1
Deaths under 1 year of age	503	560
Death under 1 year of age per 1,000 estimated live births	46	52
Deaths per 1,000 population, annual basis, first 39 weeks of year	11.4	11.4
Data from industrial insurance companies:		
Policies in force	67,628,155	67,147,726
Number of death claims	11,138	11,123
Death claims per 1,000 policies in force, annual rate	8.6	8.6
Death claims per 1,000 policies, first 39 weeks of year, annual rate	9.7	10.0

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Oct. 5, 1935, and Oct. 6, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 5, 1935, and Oct. 6, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934
New England States:								
Maine	8		5		20		1	0
New Hampshire	1					1	0	0
Vermont	1				10		0	0
Massachusetts	4	13			27	7	4	0
Rhode Island	2	2				2	1	0
Connecticut	5		1	3	31	17	0	0
Middle Atlantic States:								
New York	38	15	17	17	89	36	6	1
New Jersey	14	23	4	10	10	23	1	0
Pennsylvania	52	59			49	215	2	5
East North Central States:								
Ohio	96	67	17	3	32	29	0	2
Indiana	76	48	13	18	15	40	1	1
Illinois	47	32	18	7	12	40	1	3
Michigan	23	10	1		27	32	1	1
Wisconsin	7	2	6	3	43	66	1	2
West North Central States:								
Minnesota	11	10		2	5	30	1	0
Iowa	13	13	10	2	2	15	0	1
Missouri	55	44	37	35	18	32	5	1
North Dakota	6	3		5	8	54	0	0
South Dakota	4	4			1	6	0	0
Nebraska	3	7		2		17	0	0
Kansas	20	12	1	3	4	12	1	0
South Atlantic States:								
Delaware	1	1			33	2	0	0
Maryland ¹	9	13	4	21	2	10	2	0
District of Columbia	15	15					2	0
Virginia	62	74			9	27	0	0
West Virginia	71	68	22	12	5	28	0	0
North Carolina ¹	64	131	7		1	11	1	1
South Carolina ¹	20	17	171	191		5	0	0
Georgia ¹	32	56					0	1
Florida ¹	8	11	1		5	3	0	0

See footnotes at end of table.

October 18, 1935

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended Oct. 5, 1935, and Oct. 6, 1934—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934
East South Central States:								
Kentucky	60	129	5	34	13	20	2	0
Tennessee	67	64		12	1	2	3	0
Alabama ⁴	45	59	5	9		21	0	1
Mississippi	23	26					0	0
West South Central States:								
Arkansas	29	15	7	5			1	0
Louisiana	26	10	6	3	2	4	0	1
Oklahoma ⁴	21	3	37	17		1	3	1
Texas ⁴	76	40	61	45	16	13	1	1
Mountain States:								
Montana		1	5	4	14	49	0	0
Idaho	1						0	0
Wyoming	3	1			11	1	0	0
Colorado	6	13			10	29	1	0
New Mexico	6	3	1	1	1		1	0
Arizona	1	3	17	4	3	2	0	0
Utah ⁴						7	0	0
Pacific States:								
Washington	3				34	62	0	1
Oregon	2	3	10	22	48	10	2	0
California	40	27	18	10	71	55	2	1
Total	1,177	1,147	506	490	682	1,036	49	25
First 40 weeks of year	23,599	25,565	106,981	52,399	699,648	673,320	4,594	1,829

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934
New England States:								
Maine	7	0	13	10	0	0	7	1
New Hampshire	3	0		12	0	0	0	1
Vermont	3	0	5	3	0	0	0	1
Massachusetts	99	4	90	69	0	0	3	3
Rhode Island	25	0	4	12	0	0	0	1
Connecticut	22	0	27	11	0	0	2	0
Middle Atlantic States:								
New York	106	6	213	127	0	0	20	34
New Jersey	31	0	37	41	0	0	12	8
Pennsylvania	12	5	211	226	0	0	20	31
East North Central States:								
Ohio	3	12	244	277	2	0	46	34
Indiana	1	1	97	83	1	0	3	12
Illinois	23	8	247	304	1	0	27	43
Michigan	25	16	117	110	1	0	17	30
Wisconsin	2	20	151	181	1	1	8	4
West North Central States:								
Minnesota	4	4	93	39	0	3	0	3
Iowa	3	3	42	28	2	1	5	23
Missouri	2	1	55	50	2	0	11	60
North Dakota	1	1	12	19	1	0	0	5
South Dakota	0	3	22	18	0	1	4	0
Nebraska	1	1	26	20	3	1	0	0
Kansas	0	2	65	23	9	0	12	5
South Atlantic States:								
Delaware	0	0	3	4	0	0	2	4
Maryland ⁴	4	0	45	34	0	0	32	9
District of Columbia	5	1	6	16	0	0	2	1
Virginia	7	8	58	81	0	0	25	16
West Virginia	1	6	78	113	0	0	16	46
North Carolina ⁴	9	1	57	74	0	0	16	7
South Carolina ⁴	1	0	7	7	0	0	7	15
Georgia ⁴	0	0	22	17	0	0	13	8
Florida ⁴	0	0	3	1	0	0	0	0

See footnotes at end of table.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended Oct. 5, 1935, and Oct. 6, 1934—Continued*

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934
East South Central States:								
Kentucky	11	8	75	94	0	0	145	39
Tennessee	1	4	69	89	0	0	24	39
Alabama ¹	0	0	10	22	0	0	6	9
Mississippi	0	0	15	12	1	0	11	7
West South Central States:								
Arkansas	0	0	7	5	0	0	9	5
Louisiana	0	0	15	9	0	1	7	13
Oklahoma ²	0	1	19	13	1	0	17	10
Texas ³	1	5	23	27	0	0	27	38
Mountain States:								
Montana	0	10	52	13	0	0	3	7
Idaho	0	7	2	3	1	0	1	22
Wyoming	0	1	15	3	1	0	0	1
Colorado	0	0	35	32	0	1	4	10
New Mexico	0	0	10	17	0	0	22	7
Arizona	0	6	9	16	0	0	2	5
Utah ⁴	0	1	27	12	0	0	2	1
Pacific States:								
Washington	2	47	43	55	5	1	1	2
Oregon	1	3	48	36	0	0	3	3
California	29	51	140	138	1	0	29	17
Total	445	247	2,664	2,626	33	10	623	640
First 40 weeks of year	8,963	6,054	191,698	159,537	5,517	3,898	14,075	16,552

¹ New York City only.² Week ended earlier than Saturday.³ Rocky Mountain spotted fever, week ended Oct. 5, 1935, 1 case in North Carolina.⁴ Typhus fever, week ended Oct. 5, 1935, 19 cases, as follows: South Carolina, 2; Georgia, 7; Florida, 1; Alabama, 6; Texas, 2.⁴ Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Menin- go-coc- sus menin- gitis	Diph- theria	Influ- enza	Malaria	Measles	Pel- agra	Poli- omyelitis	Scarlet fever	Small- pox	Ty- phoid fever
July 1935										
Hawaii Territory		7	2		4		0		0	4
August 1935										
Arizona	2	9	24	4	13		2	13	0	14
Florida	1	36	2	42	11	3	4	11	0	16
September 1935										
Connecticut	2	9	5	1	23		143	84	0	20
Delaware		4	6		18		0	15	0	5
District of Columbia	12	81	1		1		29	43	0	8
Iowa	1	68	11	7	7		15	152	3	27
Maine		9	2		31		61	31	0	10
Pennsylvania	19	113		7	119	3	77	406	0	150

October 18, 1935

July 1935

	Cases
Hawaii Territory:	
Chicken pox.....	24
Dysentery (amoebic).....	1
Leprosy.....	2
Mumps.....	22
Typhus fever.....	1
Whooping cough.....	89

August 1935

	Cases
Arizona:	
Chicken pox.....	22
Conjunctivitis, acute contagious.....	2
Dysentery.....	18
German measles.....	2
Impetigo contagiosa.....	2
Leprosy.....	1
Mumps.....	33
Trachoma.....	18
Undulant fever.....	3
Whooping cough.....	27
Florida:	
Chicken pox.....	2
Dengue.....	1
Dysentery (amoebic).....	2
Dysentery (bacillary).....	1
Mumps.....	21
Typhus fever.....	1
Undulant fever.....	3
Whooping cough.....	30

September 1935

	Cases
Actinomycosis:	
Pennsylvania.....	1
Anthrax:	
Pennsylvania.....	1
Chicken pox:	
Connecticut.....	30
District of Columbia.....	7
Iowa.....	28
Maine.....	23
Pennsylvania.....	216
Conjunctivitis:	
Connecticut.....	1
Dysentery:	
Connecticut (bacillary).....	92
Iowa (amoebic).....	1
Epidemic encephalitis:	
Connecticut.....	3
Pennsylvania.....	3
German measles:	
Connecticut.....	4
Iowa.....	2
Maine.....	16
Pennsylvania.....	24
Impetigo contagiosa:	
Iowa.....	4
Lead poisoning:	
Connecticut.....	1
Mumps:	
Connecticut.....	25
Delaware.....	1
Iowa.....	66
Maine.....	88
Pennsylvania.....	277
Ophthalmia neonatorum:	
Pennsylvania.....	7

September 1935—Continued

	Cases
Paratyphoid fever:	
Connecticut.....	19
Rabies in animals:	
Connecticut.....	1
Rocky Mountain spotted fever:	
Connecticut.....	1
Iowa.....	2
Scabies:	
Iowa.....	2
Septic sore throat:	
Connecticut.....	5
Maine.....	1
Tetanus:	
Connecticut.....	1
Pennsylvania.....	1
Trachoma:	
Pennsylvania.....	1
Trichinosis:	
Connecticut.....	1
Undulant fever:	
Connecticut.....	2
Iowa.....	6
Maine.....	1
Pennsylvania.....	4
Vincent's infection:	
Iowa.....	1
Maine.....	2
Whooping cough:	
Connecticut.....	174
Delaware.....	14
District of Columbia.....	12
Iowa.....	51
Maine.....	49
Pennsylvania.....	920

WEEKLY REPORTS FROM CITIES

City reports for week ended Sept. 28, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland.....	0	1	0	0	1	0	0	1	0	0	20
New Hampshire:											
Concord.....	0		0	0	0	0	0	1	0	0	8
Nashua.....	0		0	0	0	0	0	0	0	0	—
Vermont:											
Barre.....	0	0	0	0	0	0	0	0	0	0	0
Burlington.....	0	0	0	0	0	0	0	0	0	0	11
Rutland.....	0	0	0	0	0	2	0	0	0	1	7
Massachusetts:											
Boston.....	3	0	6	15	9	0	5	1	9	181	
Fall River.....	0	0	0	0	1	0	0	0	0	4	21
Springfield.....	0	0	0	1	2	0	0	0	0	4	25
Worcester.....	0	0	0	4	11	0	2	0	0	0	45
Rhode Island:											
Pawtucket.....	0	0	0	0	0	0	0	0	0	0	14
Providence.....	0	0	1	4	7	0	3	0	0	8	47
Connecticut:											
Bridgeport.....	0	0	0	0	0	0	1	0	1	33	
Hartford.....	0	0	0	0	4	0	6	1	6	32	
New Haven.....	0	0	0	3	0	0	0	0	4	38	
New York:											
Buffalo.....	0	0	3	8	16	0	9	2	24	118	
New York.....	20	15	2	16	80	36	0	76	8	140	1,249
Rochester.....	0	0	0	5	2	0	0	0	5	60	
Syracuse.....	0	0	2	4	6	0	2	0	10	40	
New Jersey:											
Camden.....	1	0	1	0	1	0	1	3	0	31	
Newark.....	0	5	1	0	5	2	0	2	33	82	
Trenton.....	0	0	0	1	2	0	3	0	2	39	

City reports for week ended Sept. 28, 1935—Continued

State and city	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
	Diphtheria cases	Cases Deaths								
Pennsylvania:										
Philadelphia	5	3	3	6	8	28	0	21	11	61
Pittsburgh	5	3	2	2	15	26	0	8	0	27
Reading	1		0	0	2	1	0	1	0	1
Scranton	3			0	0	4	1	0	0	1
Ohio:										
Cincinnati	9		0	0	5	6	0	4	1	3
Cleveland	1	4	0	0	14	7	0	10	5	163
Columbus	5		0	0	1	8	0	2	0	0
Toledo	1	1	1	2	2	4	0	2	1	7
Indiana:										
Anderson	0		0	0	0	1	0	1	1	2
Fort Wayne	6		0	0	3	4	0	1	0	1
Indianapolis	5		0	0	9	14	0	4	1	21
Muncie	1		0	0	1	2	0	0	0	0
South Bend	0		0	1	1	1	0	0	0	22
Terre Haute	0		0	0	0	0	0	0	0	0
Illinois:										
Alton	0		0	0	0	0	0	0	0	7
Chicago	15	4	1	9	36	50	0	38	5	591
Elgin	0		0	0	0	0	0	0	0	7
Moline	0		0	0	0	1	0	0	0	4
Springfield	0	2	0	0	1	24	0	0	0	21
Michigan:										
Detroit	7	0	3	5	17	11	0	14	0	102
Flint	0		0	0	3	6	0	0	1	5
Grand Rapids	0		0	1	0	1	0	0	0	15
Wisconsin:										
Kenosha	0		0	0	0	6	0	0	0	3
Milwaukee	0		0	3	1	23	0	3	1	37
Racine	0		0	1	1	13	0	0	0	7
Superior	1		0	1	0	4	0	0	0	0
Minnesota:										
Duluth	0		0	0	2	3	0	0	0	4
Minneapolis	2		0	4	0	31	2	0	3	2
St. Paul	0		0	1	6	2	0	0	0	2
Iowa:										
Cedar Rapids	0		0	0	0	0	0	0	0	1
Davenport	0		0	0	0	2	0	0	0	0
Des Moines	1		0	0	0	2	0	0	0	30
Sioux City	0		0	1	0	0	0	0	0	1
Waterloo	3		0	0	8	0	0	0	1	1
Missouri:										
Kansas City	0		0	0	4	6	0	3	0	0
St. Joseph	2		0	0	0	1	0	1	0	20
St. Louis	7	1	2	3	9	14	0	9	4	3
North Dakota:										
Fargo	0		0	0	1	1	0	0	0	6
Grand Forks	0		0	3	0	0	0	0	0	3
Minot	0		0	0	0	0	0	0	0	0
South Dakota:										
Aberdeen	0		0	0	0	1	0	0	0	0
Nebraska:										
Omaha	7		0	0	5	3	1	2	0	0
Kansas:										
Lawrence	0		0	1	0	0	0	0	0	4
Topeka	0		0	1	0	0	0	0	0	0
Wichita	0		0	1	0	2	0	0	0	1
Delaware:										
Wilmington	0		0	0	1	3	0	0	0	8
Maryland:										
Baltimore	2	1	1	0	10	6	0	5	2	17
Cumberland	1		0	0	1	3	0	0	1	12
Frederick	0		0	0	1	0	0	0	0	6
Dist. of Columbia:										
Washington	17	1	1	1	9	14	0	13	2	161
Virginia:										
Lynchburg	0		0	0	1	1	0	0	0	2
Richmond	2		0	0	5	0	0	3	1	13
Roanoke	3		1	0	0	2	0	0	0	0
West Virginia:										
Charleston	4		0	0	0	3	0	0	1	0
Huntington	1		0	0	1	6	0	0	1	3
Wheeling	0		0	1	1	2	0	0	1	22

City reports for week ended Sept. 28, 1935—Continued

State and city	Diph- theria cases	Influenza		Meas- les cases	Pneu- monia deaths	Scar- let fever cases	Small- pox cases	Tuber- culosis deaths	Ty- phoid fever cases	Whoop- ing cough cases	Deaths, all causes
		Cases	Deaths								
North Carolina:											
Gastonia	0	0	0	0	0	0	0	0	0	0	2
Raleigh	0	0	0	0	0	0	0	0	0	0	3
Wilmington	0	0	0	0	1	2	0	1	0	0	16
Winston-Salem	2	0	0	0	0	4	0	1	3	0	13
South Carolina:											
Charleston	0	1	0	0	3	2	0	0	3	0	23
Columbia	0	0	0	0	0	0	0	0	0	0	0
Florence	0	0	0	0	0	0	0	1	0	0	11
Greenville	2	0	0	0	0	0	0	0	0	0	9
Georgia:											
Atlanta	9	4	2	0	6	2	0	4	0	0	-----
Brunswick	0	0	0	0	0	0	0	0	0	1	7
Savannah	4	0	0	0	1	1	0	4	0	0	41
Florida:											
Miami	1	0	0	0	0	0	0	2	0	0	27
Tampa	0	0	0	0	2	0	0	1	0	0	19
Kentucky:											
Ashland	2	0	0	0	1	0	0	0	1	2	-----
Covington	0	0	0	0	1	2	0	0	0	0	-----
Lexington	0	0	0	0	0	0	0	0	0	0	18
Louisville	11	1	0	0	2	12	0	3	1	7	61
Tennessee:											
Knoxville	11	0	1	0	1	1	0	3	1	0	28
Memphis	2	0	0	0	3	3	0	4	3	11	67
Nashville	0	1	0	0	0	3	0	2	1	2	48
Alabama:											
Birmingham	1	3	0	0	5	1	0	2	1	1	69
Mobile	4	0	0	0	0	0	0	0	0	0	19
Montgomery	1	0	0	0	1	0	0	0	0	2	-----
Arkansas:											
Fort Smith	0	0	0	0	0	0	0	0	0	2	-----
Little Rock	0	0	0	0	1	3	0	3	0	0	-----
Louisiana:											
Lake Charles	0	0	0	0	0	0	0	0	0	0	5
New Orleans	8	1	2	0	10	1	0	14	0	3	161
Shreveport	1	0	0	0	3	6	0	0	0	0	31
Texas:											
Dallas	7	1	1	0	1	2	0	2	1	6	55
Fort Worth	8	0	0	0	1	1	0	1	1	3	30
Galveston	0	0	0	0	0	0	0	0	0	0	11
Houston	13	0	0	0	9	1	0	2	2	0	59
San Antonio	3	0	0	0	3	2	0	7	4	0	56
Montana:											
Billings	0	0	1	0	0	1	0	0	0	0	6
Great Falls	0	0	0	0	1	0	0	0	1	4	8
Helena	0	0	1	0	0	0	0	0	0	2	1
Missoula	0	0	0	0	0	9	0	0	0	0	4
Idaho:											
Boise	0	0	0	0	0	1	0	0	0	0	5
Colorado:											
Colorado	0	0	0	0	0	2	0	2	1	6	10
Springs	0	0	0	0	5	13	0	4	1	1	74
Denver	6	1	3	5	13	0	0	4	1	1	-----
Pueblo	0	0	0	0	0	0	0	0	0	0	-----
New Mexico:											
Albuquerque	0	0	0	0	0	1	0	3	3	6	10
Utah:											
Salt Lake City	0	0	0	1	1	22	0	2	0	10	27
Nevada:											
Reno	0	0	0	0	0	1	0	0	0	0	5
Washington:											
Seattle	0	1	1	1	4	5	1	2	2	0	26
Spokane	0	1	1	5	3	1	0	0	0	4	32
Tacoma	0	0	0	0	2	0	0	1	0	0	27
Oregon:											
Portland	0	0	0	7	4	11	0	3	1	0	60
Salem	0	0	0	0	0	0	0	0	0	0	-----
California:											
Los Angeles	7	17	1	9	11	23	0	17	5	18	299
Sacramento	3	1	1	1	1	4	0	1	0	0	23
San Francisco	1	0	0	16	2	17	0	9	1	34	135

City reports for week ended Sept. 28, 1935—Continued

State and city	Meningococcus meningitis		Polio-myelitis cases	State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths			Cases	Deaths	
Vermont:							
Barre.....	0	0	2				
Massachusetts:							
Boston.....	0	0	49	District of Columbia:			
Fall River.....			1	Washington.....	3	2	7
Springfield.....	0	0	1	Virginia:			
Worcester.....	1	1	2	Lynchburg.....	0	0	1
Rhode Island:				Richmond.....	0	0	3
Providence.....	1	0	15	Kentucky:			
Connecticut:				Ashland.....	0	0	1
Bridgeport.....	0	0	7	Louisville.....	1	2	2
New Haven.....	0	0	1	Tennessee:			
New York:				Memphis.....	0	1	0
New York.....	7	9	101	Alabama:			
New Jersey:				Birmingham.....	1	0	0
Newark.....	0	0	8	Arkansas:			
Pennsylvania:				Fort Smith.....	1	0	0
Philadelphia.....	1	1	4	Little Rock.....	0	0	2
Illinois:				Louisiana:			
Chicago.....	3	1	7	New Orleans.....	1	0	1
Springfield.....	0	1	0	Texas:			
Michigan:				Dallas.....	1	0	0
Detroit.....	0	0	8	Fort Worth.....	0	0	1
Flint.....	0	0	1	Oregon:			
Grand Rapids.....	0	0	2	Portland.....	0	0	1
Minnesota:				California:			
Minneapolis.....	0	0	1	Los Angeles.....	0	1	9
Missouri:				San Francisco.....	0	0	
Kansas City.....	1	1	0				
St. Louis.....	0	1	0				

Epidemic encephalitis.—Cases: Worcester, 1; Providence, 1; Kansas City, Mo., 3; St. Louis, 1; New Orleans, 1; San Francisco, 1.

Pellagra.—Cases: Boston, 1; Charleston, S. C., 1; Savannah, 1; Louisville, 1; Birmingham, 1; New Orleans, 1; Sacramento, 1; San Francisco, 2.

Typhus fever.—Cases: Charleston, S. C., 1; Florence, S. C., 1; Atlanta, 1; Savannah, 3; Tampa, 1; Montgomery, 2; Dallas, 1; Houston, 1. Deaths: Dallas, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended September 21, 1935.—During the 2 weeks ended September 21, 1935, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada, as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis		1		4					1	6
Chicken pox			50	74	46	23		19	218	
Diphtheria	8	7	32	18	9	3		3		80
Dysentery			6	5						11
Erysipelas			6	1	2			1	2	12
Influenza		4		13					6	23
Measles	3	28	3	42	181	6	36	26	83	408
Mumps		35			58	39	212	16	25	385
Paratyphoid fever	4	2			10					16
Pneumonia				6					6	12
Poliomyelitis		2	2	1	18	6	1	51	1	82
Scarlet fever	2	18	5	199	148	28	3	20	24	447
Smallpox						3			2	2
Trachoma									6	9
Tuberculosis	5	22	13	138	85	8	7	5	22	305
Typhoid fever	4	6	23	80	52	6	10	3	7	193
Undulant fever				2	3		5			10
Whooping cough	6	25		134	250	46	110	15	16	602

JAPAN

Epidemic encephalitis.—From August 24, 1935, to September 19, 1935, 350 cases of epidemic encephalitis with 73 deaths were reported in the Prefecture of Kanagawa, Japan, distributed as follows:

	Cases	Deaths	Cases recovered
Yokohama	168	21	21
Yokosuka	77	22	9
Kawasaki	40	14	8
Hiratsuka	1	0	0
Suburban districts	64	16	4
Total	350	73	42

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for September 27, 1935, pages 1354-1368. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued October 25, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Cholera

Siam—Nondpuri Province.—On September 25, 1935, one case of cholera was reported in Nondpuri Province, Siam.

Plague

Ceylon—Tellijjawilla.—On September 30, 1935, one case of plague was reported at Tellijjawilla, near Matara, Ceylon.

Peru.—During the month of August 1935, plague was reported in Peru as follows: 3 cases with 2 deaths at Callao and 2 cases at Lima. In Chancay Province 5 cases of plague with 3 deaths, including 3 cases of suspected plague with 2 deaths, were reported.

Yellow Fever

Columbia—Intendencia of Meta—Acacias.—On August 2, 1935, one death from yellow fever was reported at Acacias, Intendencia of Meta, Colombia.